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Functional Process Improvement  
Business Rules  
Requirements Definition Workshop

Final Report



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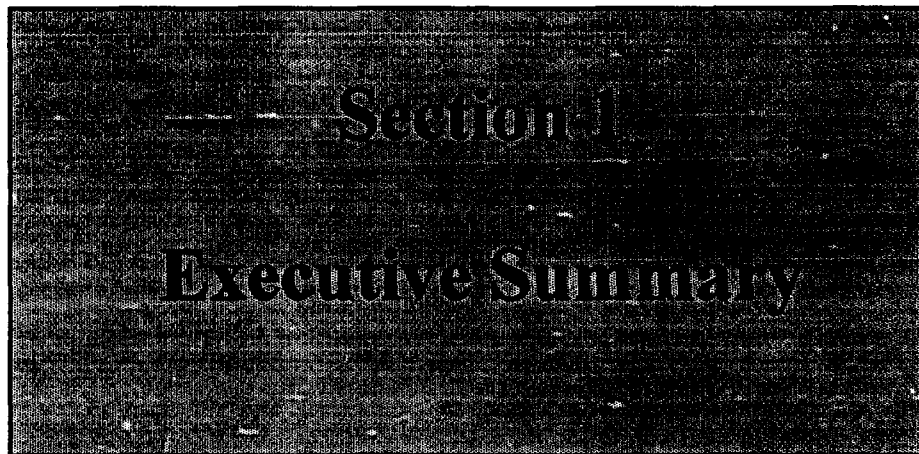
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## **Section 1 Executive Summary**

The Office of the Director of Defense Information (DDI) initiated the Functional Process Improvement (FPI) Business Rules Requirements Definition effort with a Data Model Planning Workshop in January 1993. The workshop team determined that information flows identified in the FPI Enterprise Activity Model were open to interpretation. These flows were not rigorous nor robust enough to address specific data needed for FPI, e.g., cost elements. An engineering approach, such as data modeling, was needed, breaking information down into reusable and shareable components, i.e., data, available for any level of discussion. The workshop team outlined a data modeling effort to augment the FPI Enterprise Activity Model, exploring the data and business rules of FPI process. Business rules are phrases, captured in data models, which identify constraints effecting business processes. Whether or not they are currently defined, every organization has a set of standing business rules. These rules cover things and concepts which members of the organization require knowledge of as well as a description of those things or concepts. These things and concepts (people, places, objects, events, states, ideas or pairs of things) are called entities. The entities and their respective relationships comprise the business rules.

The FPI Business Rules Requirements Definition was conducted in three phases: a planning workshop, which merged some related, available data models as a pro forma for downstream modeling; a modeling workshop, which built the initial FPI Integrated Data Model and identified issues requiring further analysis; and a validation workshop, which included experienced FEA practitioners who reviewed model accuracy regarding their requirements, and which concluded with a series of issue resolution sessions.

This data modeling effort focused on cost elements and their relationships, and established linkages between Functional Economic Analysis (FEA) and:

- Office of Management and Budget IT 43 Series reporting requirements (meshing Comptroller and C3I viewpoints)
- Functional and Automated Information System review requirements (PA&E and C3I)
- Functional management requirements (All OSD)
- Acquisition/Defense Acquisition Board requirements (Acquisition, PA&E, and C3I)

In keeping with the principles of the Corporate Information Management (CIM) initiative, the FPI Business Rules Requirements Definition workshop team has provided a means for functional managers to collect cost data for these separate yet similar requirements once, and use it many times.

The focus on cost element was complemented by other modeling themes, including:

- Performance measurement
- Recurring activity resource consumption (IDEF0 activity mechanisms).
- Initiative, or one-time, resource consumption.
- Cost drivers (IDEF0 activity controls).
- Linking initiatives to recurring activities (cost/benefit accountability).

These themes organized the team's analysis during the workshop. Once the results were available, the team built three new sets of information. One set of topical area views chops the model into manageable dialogues, e.g., the association between drivers and performance measures. Another set organizes entities under different information object areas, e.g., the entities supporting OMB IT 43A-1C1 reporting. The

other set organizes entities into abstractions that highlight improvements in the FPI process, e.g., tying performance measures to strategic goals.

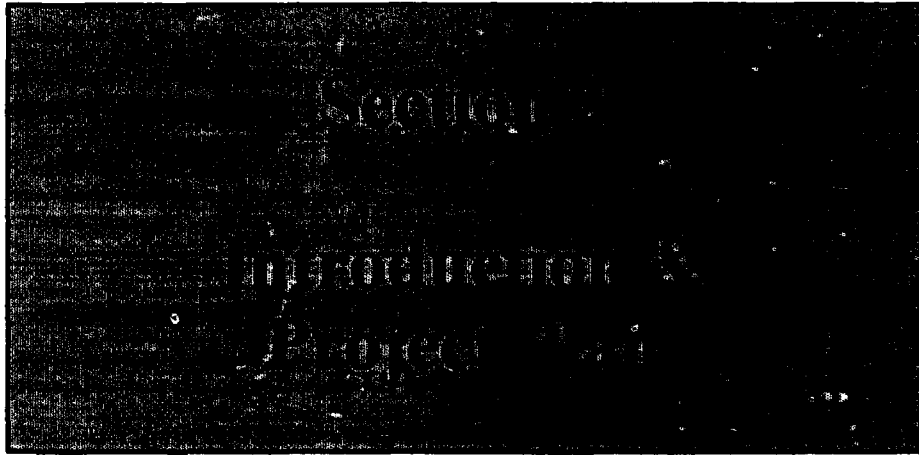
The observations culminating from these workshops include recommendations on the addition and clarification of guidance to those performing Functional Process Improvement. Working with representatives from the Institute for Defense Analysis (IDA), the team recommended incorporating changes into version 3.0 of the Functional Economic Analysis Model, anticipated for release during the fall of 1993.

The next step for the FPI Integrated Data Model is the validation of the model through pilot projects this summer and fall. These pilot projects will continue the validation and extended attribution of data requirements represented in the FPI Integrated Data Model.

The model documentation, contained in the appendices of this report, will be provided electronically to DISA-CIM for inclusion in a data repository. DISA-CIM becomes the model's custodian at that point.

The consensus supporting the data model and the new thinking resulting from this effort are solids step in simplifying the FPI process and its information requirements, and in paving the way for increased FPI automated preparation using shared functional and financial data.





## **Section 2 Introduction & Project Plan**

### **2.1 Background**

On 1 October 1992, the Department of Defense Instruction (DODI) 8020.1-M (draft) initiated the formation of the Functional Process Improvement Program (FPIP) for the Department of Defense (DoD). This program was established as a method for eliminating redundant processes and redundant data infrastructures. The FPIP is also a tool for process re-engineering to eliminate inefficiencies, in accordance with the principles promoted through the Corporate Information Management (CIM) initiative. Structured methods and techniques for analyzing and recommending improvements in DoD functional activities have evolved through the experiences of the functional managers pioneering Functional Process Improvement within DoD. One of these methods, the Functional Economic Analysis (FEA), examines current business processes, develops options for improvement of those processes, and facilitates comparisons of the cost and subsequent savings of those options.

As various groups within DoD prepared FEAs for the first time, inconsistencies arose in the meanings of types of information (e.g., improvement opportunities, models, performance measures) and how they are interrelated. This is particularly true in the area of costs.

It is very difficult to relate cost elements to the specific functional activities addressed in FPI. Budgets reflect DoD programs, and tend to aggregate costs at a high level. Acquisition costs are arranged by investment and life cycle phase. Functional activities do not directly align to programs, investment, or life cycle phases, and are less aggregated than typical budgets. Currently, there is no clear or standard way to resolve these differences. These translations of budget to activity costs, and activity to acquisition costs, result in loss of accountability and accuracy.

To resolve some of the questions involved in connecting the activity costs required in FEA and the conventional budget arrangements such as Major Automated Information System Review Council (MAISRC), Planning Programming Budgeting System (PPBS), and reporting exhibits such as the IT 43, the Office of the Director of Defense Information (DDI) began the development of a FPI Enterprise activity model. This model depicts various information flows feeding to or resulting from the FPI process. Describing these information flows was an important first step in promoting common understanding, although it lacked the rigor needed for sharing information. The rigor needed is provided by semantic data modeling, such as contained in the IDEF1X data modeling method.

The DDI sponsored the FPI Data Modeling Planning Workshop in January 1993. That effort identified the scope of the phases that followed, and identified previous data modeling efforts performed by other DoD sponsored groups that included subject areas of interest to this scope. These models served as the starting point for the construction of the initial FPI Integrated Data Model. The team for Phase I also examined the FPI Enterprise activity model, which has undergone through several validation sessions and continues to be updated as FPI evolves. The group examined the information presented in the FPI Enterprise activity model to ensure that the data it represents was captured in the data model.

## 2.2 Workshop Purpose/Mission

The primary purpose of this modeling effort is to identify and understand the shared data that underlies and provides the foundation for Functional Process Improvement, and to identify linkages to the related processes of Economic Analysis (EA) conducted by the Major Automated Information Systems Review Council (MAISRC) and the IT 43 exhibit reporting process. This concept of focusing the data to meet the needs of the Functional Manager is illustrated in Figure 2-1.

The FPI Business Rules (B/R) Requirements Definition Workshop team members are subject matter and functional experts from different DoD areas. The mission of the FPI B/R team is to create the FPI Enterprise Data Model, identify the linkages to the other financial processes, make recommendations regarding the resolution of identified issues, and disseminate this guidance to the Functional Managers conducting FPI.

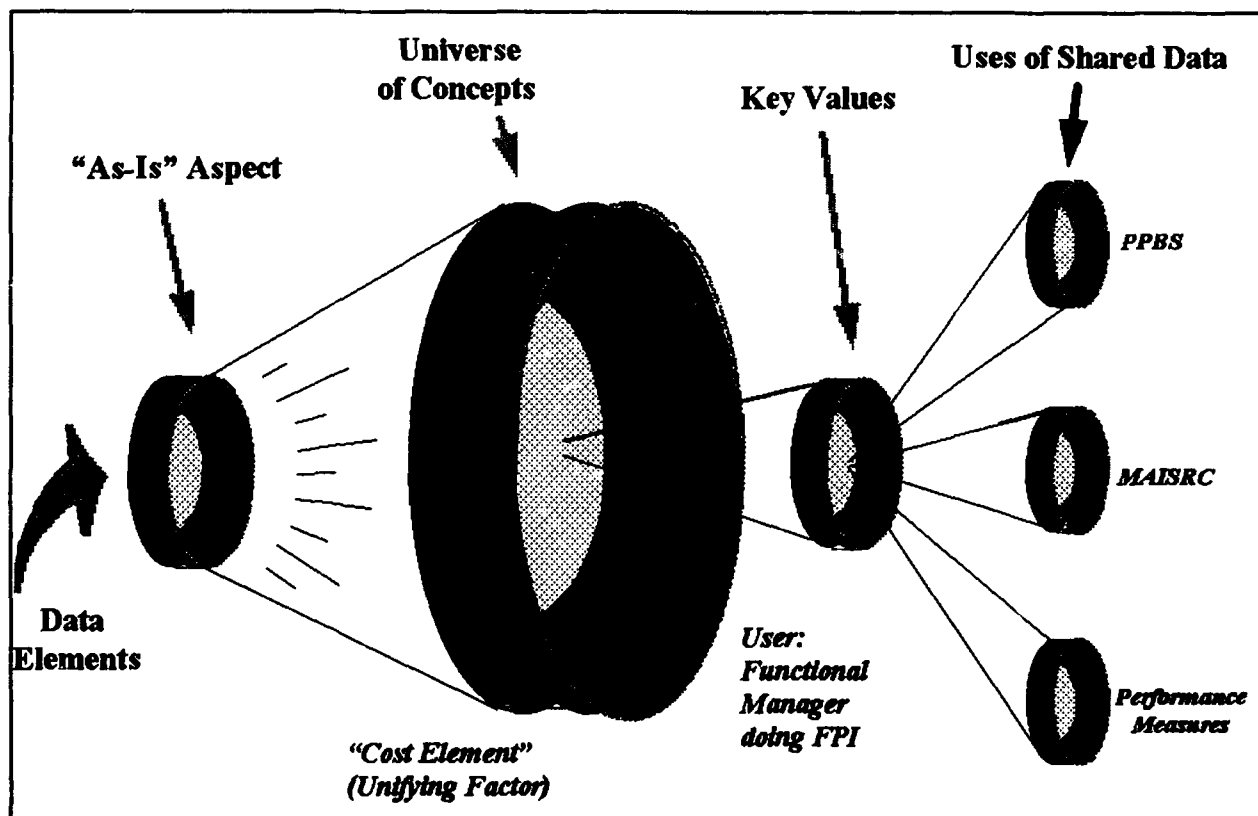


Figure 2-1. Data Focused From Different Perspectives

## 2.3 Participants

The FPI Business Rules Requirements Definition Workshop phases were led by Dave Norem of the DDI. The core team for the overall effort consisted of the following individuals:

Name	Affiliation	Phone Number	Fax Number
Jack Cloos	IDA	703-845-2506	703-845-2211
Paul Kaschak	DISA-CIM	703-285-5222	703-285-5255
Doug McDonald	DISA-CIM	703-285-5212	703-285-5255
Dave Norem	DDI	703-746-7911	
Joe Romito	LMI	301-320-7439	301-320-4701

**Table 2-1. Core Team**

Extended team members participated in the different phases, providing subject expertise and sharing their experiences in doing Functional Economic Analysis. The following people participated as subject matter experts in one or more of the workshop sessions:

Name	Affiliation	Phone Number	Fax Number
Steve Bagby	SAFM-CA	703-756-0335	703-756-2625
Lowell Blagmon	NCA	703-746-2308	703-746-2390
LTC Gary D. Duvall	OASD (HA), MFIM-LOG	703-756-5611	703-756-8964
Herb Ewert	SAIS-IDC	703-695-5216	703-697-4235
LCDR Marcus Foote	SPAWAR	703-602-0107	703-602-5207
Dean Hansen	D. Appleton Co., Inc.	703-573-7644	703-698-8219
Dan Hill	SRA	703-558-4054	
Eddie Jackson	DISA/CIM/OTI	703-756-7802	703-756-5881
Joseph Jengehino	HQDA, SAFM-BUC	703-697-6241	703-614-8807
Joe Krushinski	OUSDA) AP+PI	703-697-8020	
Sharon A. Larson	OASD(HA), MFIM-LOG	703-756-8780	703-756-8706

**Table 2-2. Extended Team Members**

Name	Affiliation	Phone Number	Fax Number
Nancy Lopez	NISMIC	703-602-2581	
Capt. Tom Malsack	DLA	703-558-4026	
Jim Markell	Wizdom	703-548-7900	703-548-7902
Mike Medlock	LMI	301-320-7439	301-320-4701
Rex R. Mshail, Jr.	DLA (CAAI)	703-274-1916	
Rick Osseck	ISI	703-578-8359	
Janet Ostriker	Wizdom	703-548-7900	703-548-7902
Jewel Parker	PROC CIM	703-285-6505	703-285-6579
Mike Peter	NISMC	703-602-2581	
Dick Pombrio	PMA	301-608-3400	
Jan Rider	DLA	703-274-6184	703-274-3964
Larry Robertson	USACEAC	703-756-2049	703-756-7553
Alec Salerno	IDA	703-845-2506	703-845-2211
David Sidvansky	HQDA, SAFM-FO	703-693-5572	
Lt. Col. Harvey Sietsema	OASD (HA), MFIM-LOG	703-756-5611	703-756-8964
David Smith	SRA	703-558-4734	
Stan P. Smith	HQDA, SAIS-PPG	703-614-0447	703-697-1583
Paula C. Spinner	SAF/FMCE	703-693-9346	703-697-6904
Tom Strain	OASD (P&L) LSSD	703-274-4765	703-274-3970
Mike Thompson	PROC CIM	703-274-8348	703-617-7248
CAPT Mike Tiernan	HQ USAF/SCPP	703-695-4783	703-614-0156
Ron Wilson	OASD (PA&E)	703-693-3827	703-693-3828

Table 2-2. Extended Team Members - Continued

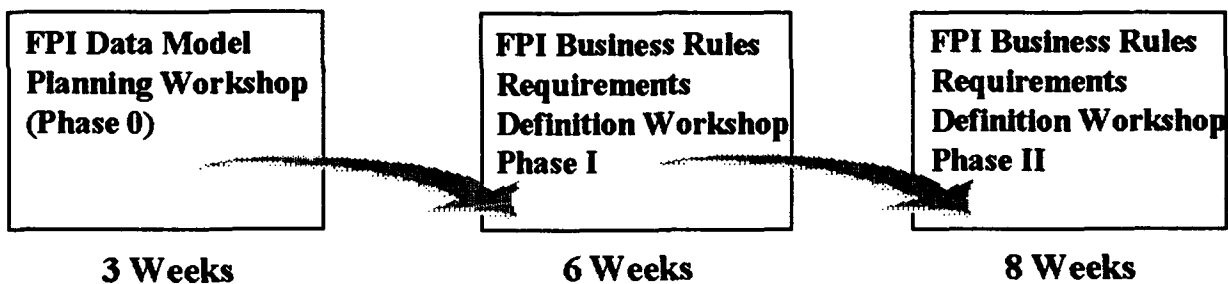
The workshop phases were conducted in facilitated modeling and validation sessions. Facilitation and workshop support were provided by:

Name	Affiliation	Phase of Project
Ron Batman	D. Appleton Co., Inc.	Phase I
Robin Cleary	SRA	Phase II
Kelly Fahey	D. Appleton Co., Inc.	Phases I and II
Howard Gentle	D. Appleton Co., Inc.	Phase II
Ed Maltese	D. Appleton Co., Inc.	Phase 0 (Planning Workshop)
Robert Moravec	D. Appleton Co., Inc.	Phases 0, I and II
Alexis Stevens	D. Appleton Co., Inc.	Phase 0 (Planning Workshop)

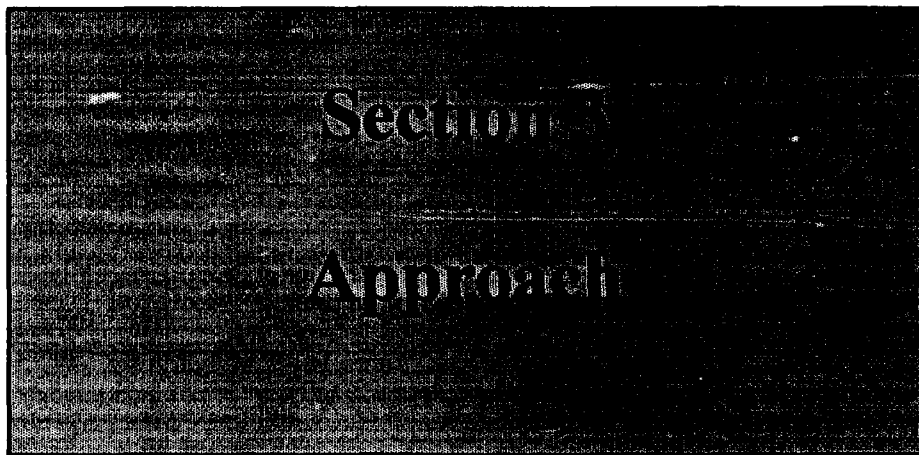
**Table 2-3. Facilitation Team**

## 2.4 Project Schedule

The project was conducted in three phases: the Planning Workshop (Phase 0), Phase I, and Phase II, illustrated in Figure 2-2.



**Figure 2-2. Project Schedule**



### Section 3 Approach

The FPI Business Rules Requirements Definition project was conducted in three phases. The first, Phase 0, produced the project plan and scope for the subsequent efforts. Phase I was devoted to constructing the FPI Enterprise Data Model and documentation of issues. Phase II continued in accumulating issues, and examined those issues to provide recommendations and solutions. Illustrated in Figure 3-1 is an activity model constructed to depict the process during Phase II of this integration project.

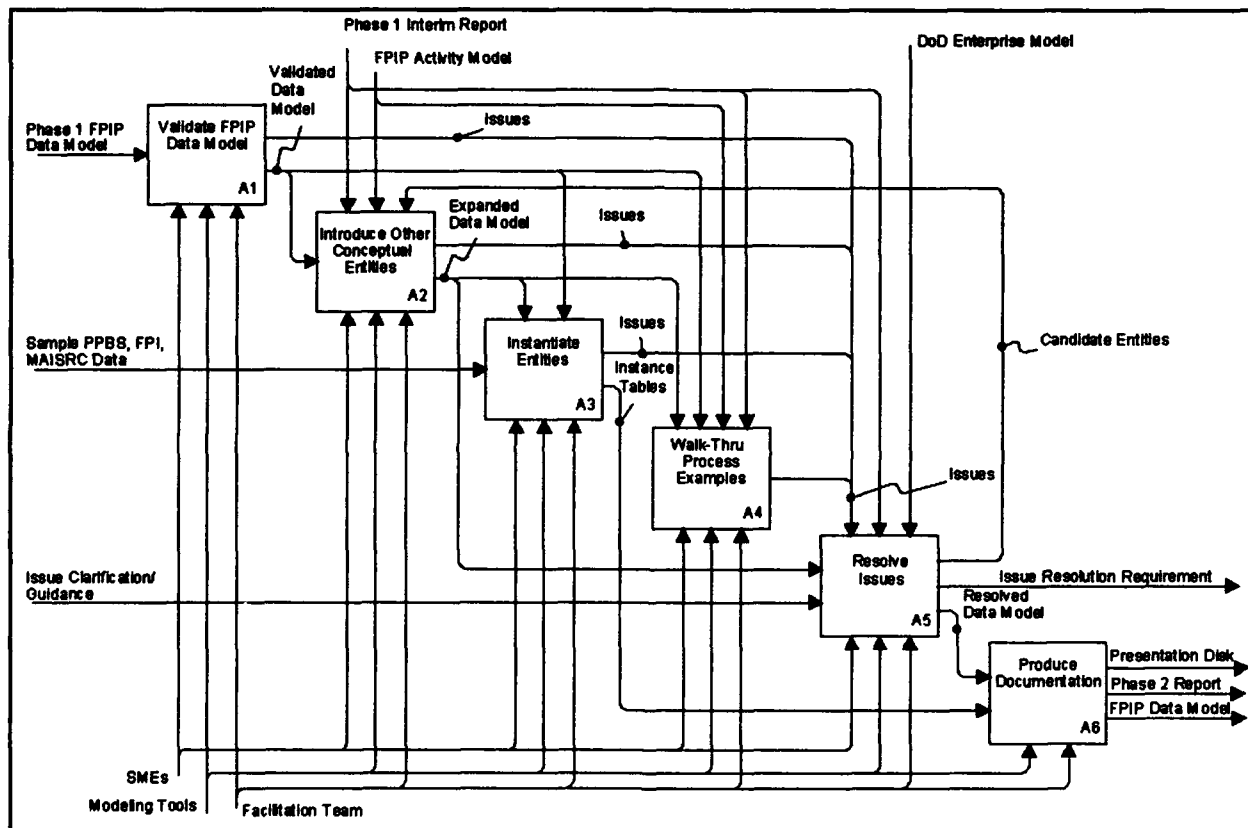


Figure 3-1. FPI B/R Workshop Activity Model

#### 3.1 Phase 0

The Planning Workshop was conducted over a period of three weeks. The team reviewed existing data models, created by various government and commercial organizations, in order to identify those which best represented the subject areas related to the mission and purpose of this data modeling effort. The



team identified the scope for the subsequent efforts, developed a project plan, and produced a merged, pro forma model that included seven data models for review by the Phase I group. These data models were:

- Functional Economic Analysis (FEA) Data Model
- Activity Based Costing (ABC) Data Model
- U.S. Army Corps of Engineers (USACE) Encyclopedia Data Model
- IDEF Users Group Meta-Model
- U. S. Army Financial Management Model
- Mobil Organization View
- ECAC Data Model - Organization View

The project plan identified major subject areas: PPBS and budgeting; Information Systems and the Major Automated Information System Review Council's (MAISRC) Economic Analysis (EA); and, Activity/Organization. The team anticipated a linkage in cost information within these topical areas,

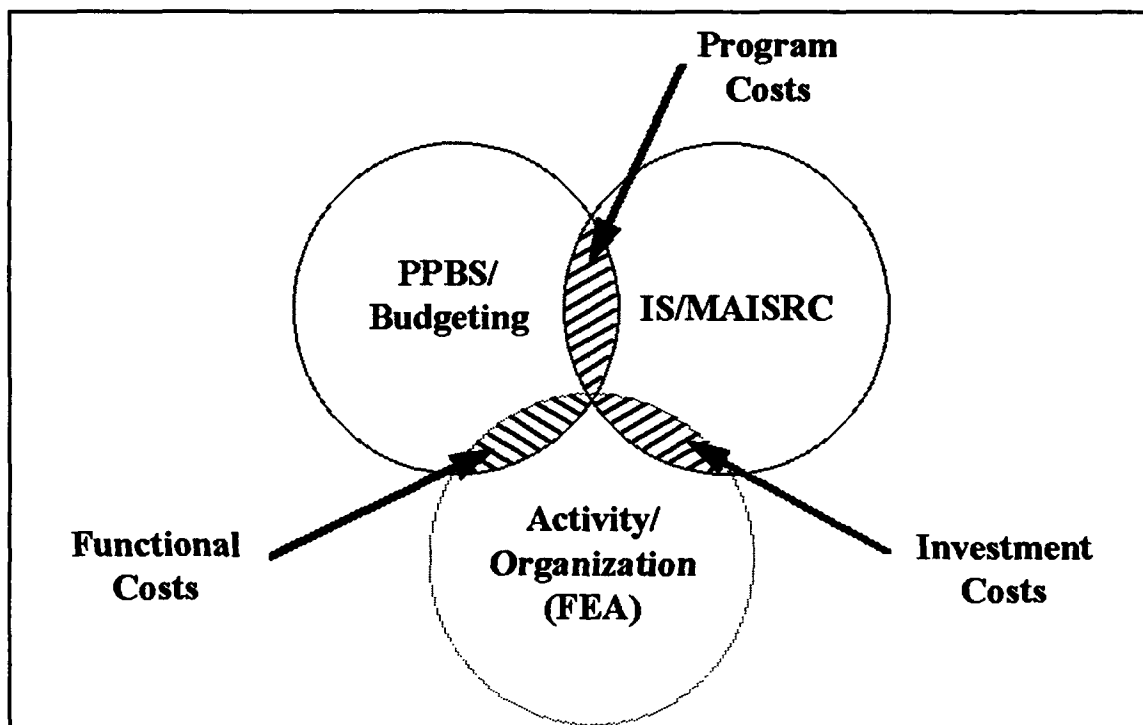


Figure 3-2. Areas of Discourse

which is illustrated in Figure 3-2.

### **3.2 Phase I**

During the first week, a team reviewed the seven data models, and chose the areas that best represented the business rules for the focus areas. The team developed a validation plan for reviewing the topic areas during the subsequent weeks.

It is the "reuse" of these data models that enabled the group to accomplish the Phase I objectives within the six week timeframe. The core team reviewed the models to validate, analyze and compare the entities. The team then selected the models and specific groups of entities for review by the topic area experts during the following weeks. The results of the area analyses, outlined below, were then consolidated to create the FPI Data Model.

#### **Activity/Organization Area**

The group chose the IDEF Users Group model as the starting point for the Activity area, and a combination of the Mobil and ECAC models for the Organization area. The team created the FPI Data Model Activity/Organization View from this starting point, supplemented by ideas from the other models and the collective expertise.

The group also created the FPI Data Model Initiative View, using portions of the Activity/Organization View and the FEA Data Model. The resulting view depicted ideas the core team wanted to the IS team to review, and included a preliminary link between activities and information systems. The team identified the Army Financial Management model as the starting point for the PPBS group and created a view of that model, eliminating the non-applicable entities and relationships.

#### **Information Systems Area**

Subject Matter Experts (SMEs) for the area of Information Systems reviewed and validated the Activity/Organization and Initiative Views. The group also examined a view from the Army ODISC4 Data Architecture Strategic Requirements Analysis Planning (STRAP) data model. The group examined the entities and relationships within these models, and created a view to represent the IS area. The IS view reflects the significant entities and relationships for Information Systems, and the business rules that relate IS to the Activity/Organization view.

#### **PPBS/Budgeting Area**

The PPBS SMEs validated the IS view in the third week, and reviewed the Army Financial Management model view. The Financial Management model served as a starting point for the FPI PPBS View. The group validated the findings of the previous groups, and chose the entities from the Financial Management model that best represented the budgeting area, creating the PPBS View.

The three topical data model views were analyzed, and same or similar entities consolidated. The three views were integrated to form the FPI Data Model. Issues identified during, but not resolved within, the validation process were consolidated into recommendations for Phase II of the data modeling effort. Analysis of the integrated view yielded further discovery of topics to be addressed in Phase II.

### **3.2 Phase I**

During the first week, a team reviewed the seven data models, and chose the areas that best represented the business rules for the focus areas. The team developed a validation plan for reviewing the topic areas during the subsequent weeks.

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### **3.3 Phase II**

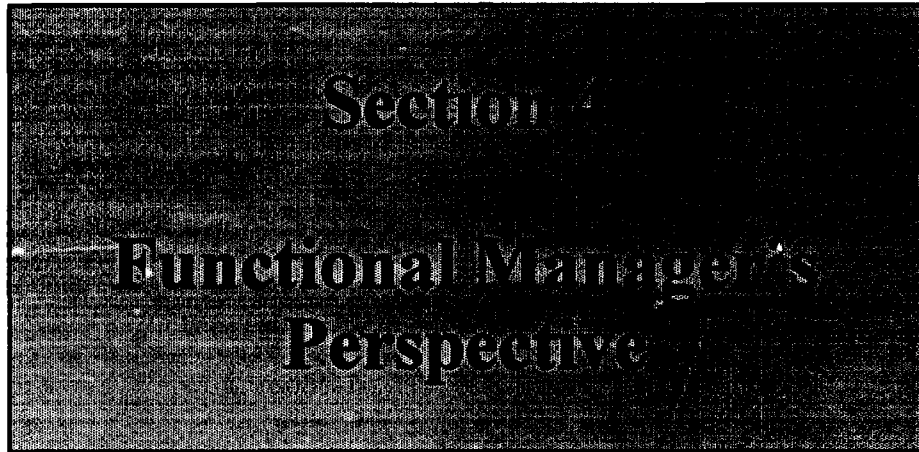
Phase II began with a session devoted to further exploration of the issues associated with the data model. The circle of participants in the FPI Data Model was expanded to include subject matter experts in the model topics and Functional Managers in various stages of FPI. The group met to validate the FPI Integrated Data Model and explore how well the model would meet the IT 43 and MAISRC information requirements. The group built instance tables for principal entities, to ensure that the keys were accurately depicted. These instance table examples are contained in Appendix G of this document.

The core team considered this validation and consensus process critical to the success of this effort. The validation process brought together the people who provide the guidance on how to perform FPI and FEA, and the people who use the guidance to do FPI and FEA. The Functional Managers provided feedback on their experiences with FEA and with the processes of MAISRC and IT 43 reporting. The feedback from these users provided numerous recommendations on the simplification of FPI guidance and requirements.

Validation sessions were conducted to ensure that the model and recommendations would meet the multiple needs of the DoD people and processes depending on the data. Mr. Ron Wilson from PA&E participated to ensure that the model would be compatible with the information requirements of MAISRC. The core team met with Mr. Chuck Cardiff from the Comptroller's office to gain knowledge on the IT 43 reporting requirements, ensuring that the information needed for these reports could be derived from data in the model. The team also met with Dr. Tom Frazier and Mr. Alec Salerno of IDA to discuss issues that were related to the FEAM software. The FEAM model is being modified based on the discussions of that meeting.

It is important to note that in constructing the FPI Integrated Data Model the group did not build specifications, but instead captured requirements. In other words, the key-based model was not built from a perspective of future implementation. The model was constructed for the purpose of capturing the business rules and data requirements in FPI. While the model could easily serve as an excellent starting point for implementation, the group recognized the need to fully capture and define requirements with a more conceptual intent.

The issue areas documented in this session and in Phase I were consolidated into 17 issue areas. These issue areas were organized into logical groupings, and meetings were conducted for further modeling and resolution of non-modeling issues. The conclusions resulting from issue resolution and model analysis are documented in Section 5, and the issue tracking documents are contained in Appendix G.



## **Section 4 Functional Manager's Perspective**

The FPI Integrated Data Model employs the IDEF1X modeling techniques to define the process in a logical manner, supported by a graphical representation. To facilitate ease in quickly reading and understanding the FPI Data Model, the model has been depicted in this section in two graphical forms: the FPI Executive Integrated Data Model View, which is intended to be an "executive summary" for the full model; and the Topical Area Views, which focus on specific areas of interest using small groups of entities. In addition to the graphical representations of the model, this section contains a section titled Object Analysis and an abstracted collection of the business rules. The Object Analysis maps the data entities to the areas of major interest, such as IT 43 exhibits. The Business Rule Abstraction is a subset of the business rules which impact the FPI process or its procedures, e.g., improvement opportunities must tie to a performance measure.

### **4.1 Data Model Semantics**

A data model is a graphic representation of an organization's conceptual schema. That is, it is a representation of the data required to support an organization in performing its tasks, as well as the relationships between those data entities. The primary purpose of a data model is to assist in the documentation and mapping of information requirements, as well as to document the "Business Rules". Business Rules are phrases which identify constraints effecting business processes. For further information or assistance in reading IDEF1X data models, contact the CIM Hotline.

### **4.2 Why IDEF1X?**

IDEF1X has proven to be a useful and powerful tool for modeling a conceptual schema, or a neutral representation of shared information elements. IDEF1X provides a full set of semantic modeling capabilities which define data in a fully normalized<sup>1</sup> structure, allowing an initial model to be extended without altering the initial set of entities, relationships, and attributes. IDEF1X models are also used to automatically generate database designs and data integrity control logic.

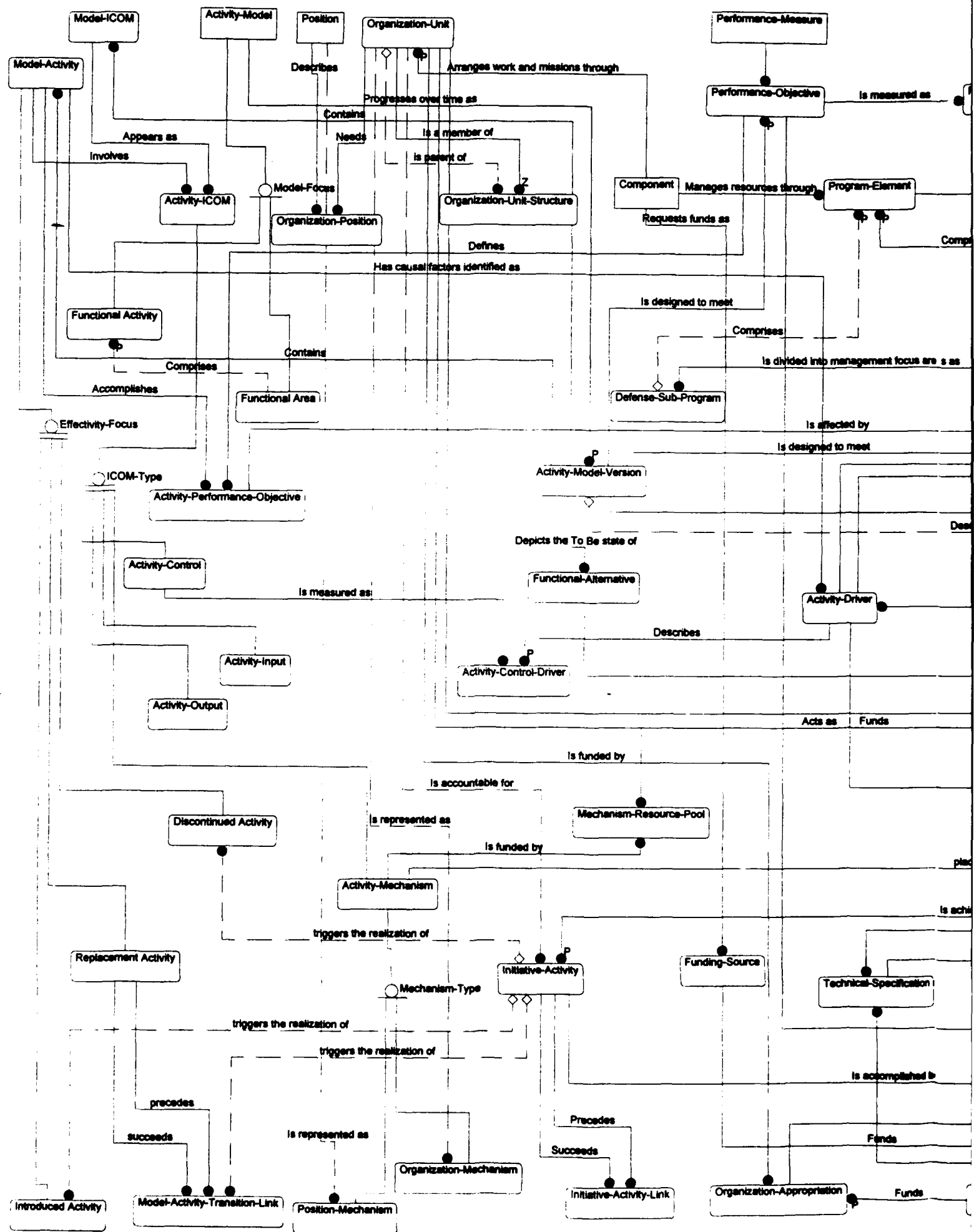
### **4.3 FPI Executive Data Model View**

The FPI Executive Data Model View depicted on the following page is an entity-relationship level version of the FPI Data Model. Many of the category entities and some associative entities were deleted in order to facilitate the quick understanding of the primary ideas represented in the model. The "executive view" depicts the FEA requirements and a logical linkage between those requirements and the DoD financial structure. The complete key-based FPI Integrated Data Model is contained in Appendix B.

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<sup>1</sup>Normalization is the process of reducing information and its supporting data down to its non-redundant, or "atomic" level; i.e., where each fact is captured once and has one exact meaning.

**Figure 4-1. FPI Data Model Executive View**







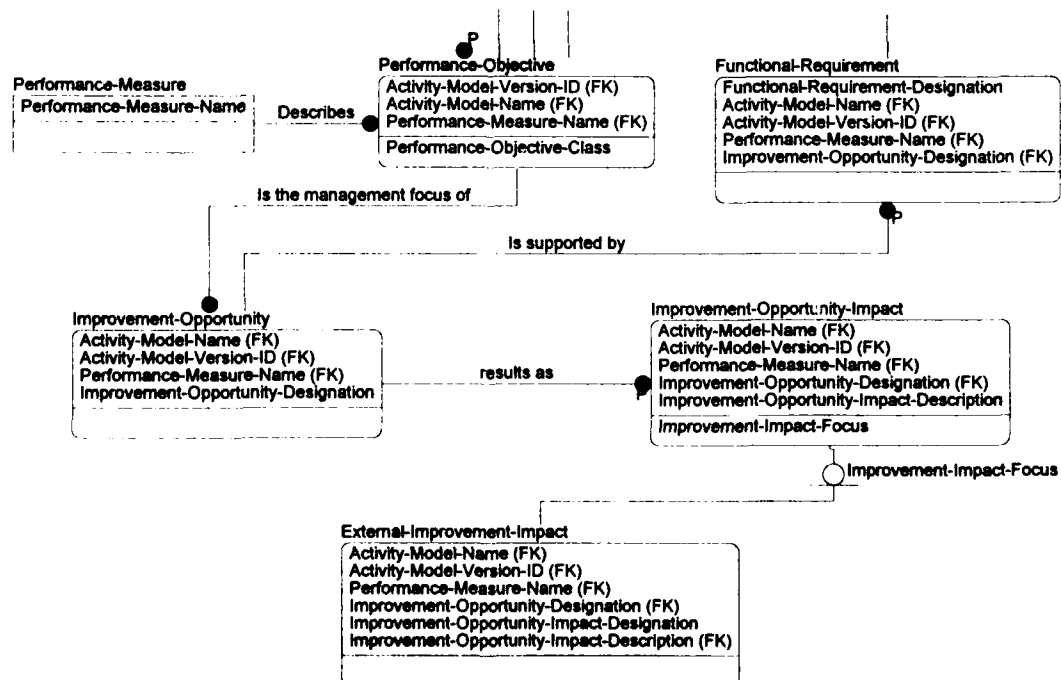
#### 4.4 Topical Area Views

The FPI Integrated Data Model was examined for areas of interest or issues. These areas were divided into seventeen topical areas, and the data model was abstracted to depict the entities involved in each topical area.

##### 1. Improvement Opportunity:

The FPI Data Model defines the impact and importance of the Improvement-Opportunity to the FPI/CIM initiative. The representation identifies the parameters of an Improvement-Opportunity, previously left to the interpretation of a workshop team. The data model created for the FEA Guidebook showed the identifying relationship from Performance-Objective to Improvement-Opportunity. The business rule stated by this relationship says that an Improvement-Opportunity must be linked to a Performance-Objective, and thus a Performance-Measure. An Improvement-Opportunity depends on this linkage for its very existence. Thus, an Improvement-Opportunity now has a defined role in the assessment of an operation, and is no longer simply an idea. This role was very different from previous thinking. The core team concurred and adopted the concept from the FEA data model. The group also determined that an Improvement-Opportunity is supported by one or more Functional-Requirements. The Functional-Requirement entity links the Improvement-Opportunity to the implementation of an Initiative.

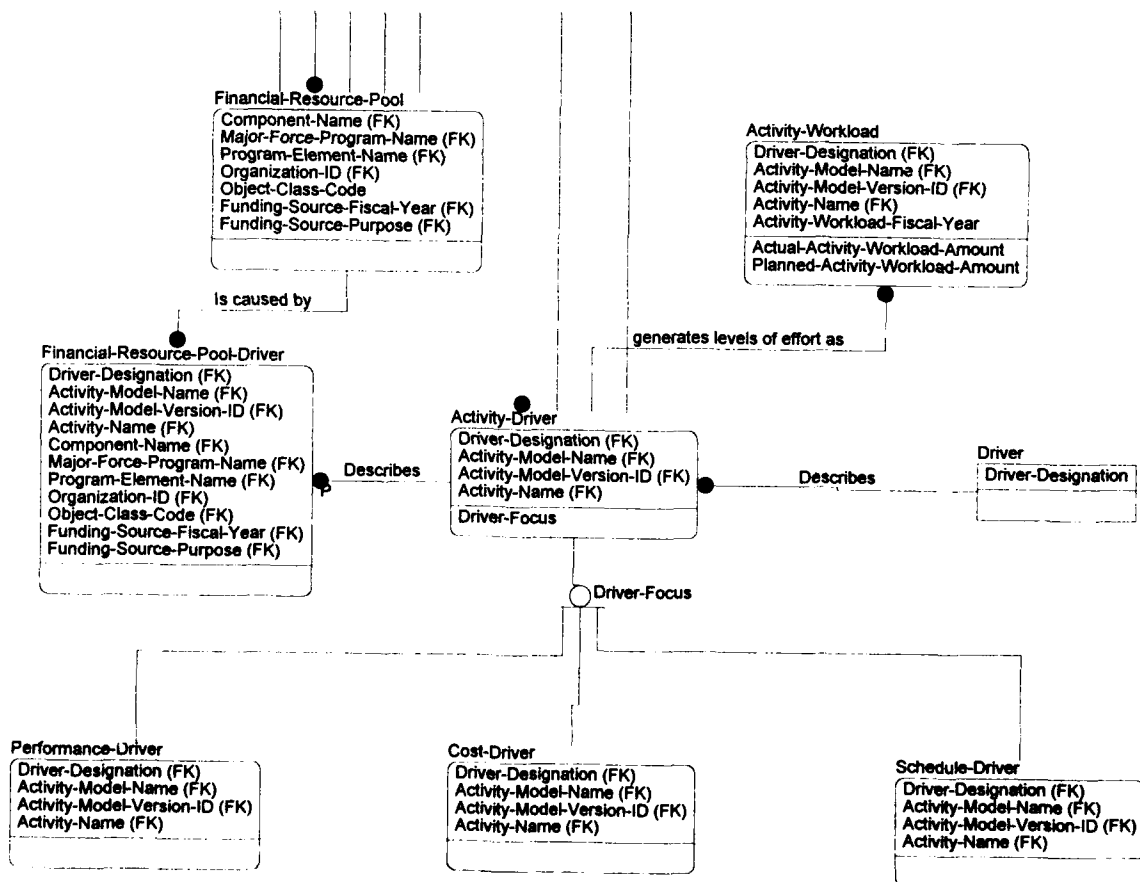
The entity Improvement-Opportunity-Impact was created to provide a means to show the many potential impacts associated with a particular Improvement-Opportunity. A category entity called External-Improvement-Impact was created to depict the impact of an improvement opportunity outside the realm of the Service or Agency performing FPI. The external impact could be positive, such as a cost saving to another Service or Agency; or, the external impact could be negative, e.g. a rise in cost to another Service or Agency. In this way those external impacts could be tracked when they are known.



## 2. Driver to Cost Pool

A cost pool or Financial-Resource-Pool is a "pot of money" established to pay for the expenses of doing a particular activity. In the data model, this cost pool is linked to the Activity-Driver through the associative entity Financial-Resource-Pool-Driver. Essentially, this graphic states that there are reasons (regulations, procedures, need, etc.) driving the accomplishment of an activity, and thus a specific allocation of funds is established to pay for the completion of the activity. Also represented is the idea that an Activity can have more than one Driver (reason) and that the funds may come from multiple locations to pay for an activity. However, each Driver will have a direct link to a specific account or "pot of money". From an accounting perspective, the driver creates the need for a pool. Controls cause the pools, and Mechanisms drain the pool. Whereas the drain from the pool was known, the idea of this cause is new. These cost pools are further illustrated in Abstraction 8, and the relationships of each pool are further explored in Abstractions 10 and 12.

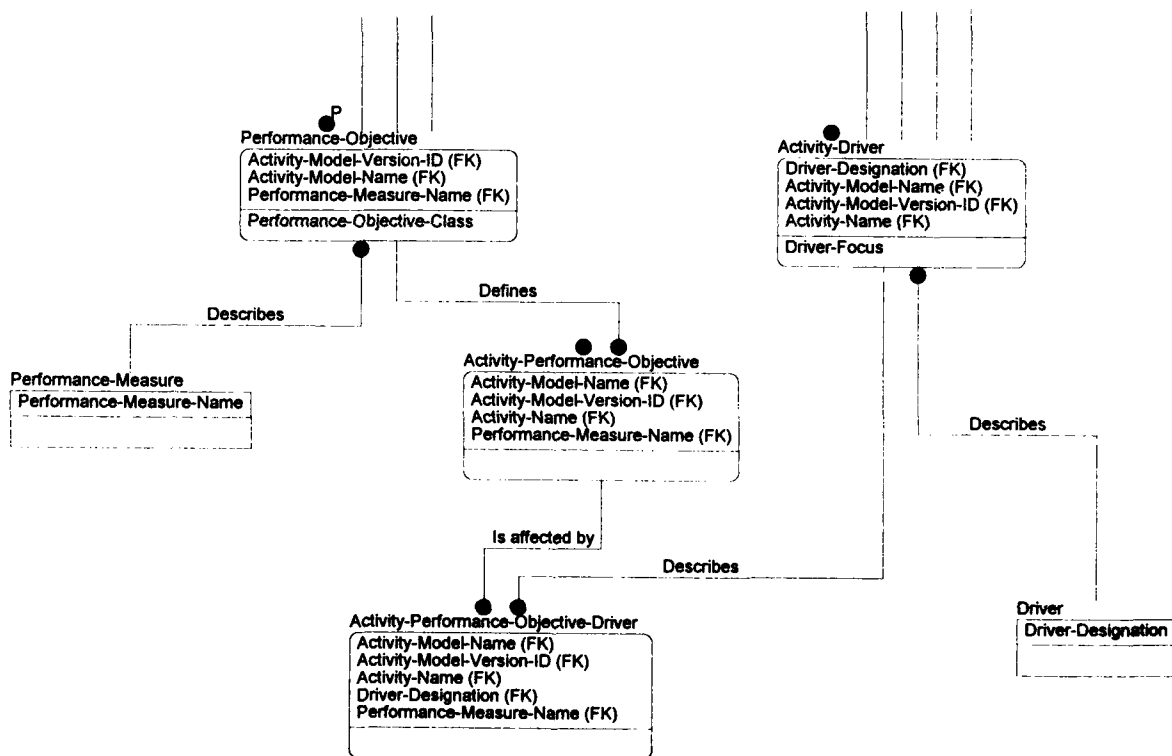
The entity Activity-Workload provides the means to link the driver to the expected overall output of an activity for a given fiscal year.



### 3. Driver to Performance Measure

A Driver or Activity-Driver is the reason for which an activity is performed. This portion of the data emphasizes that the reason an activity is performed, or driver, must have an objective that can be measured. Thus, an organization needs to be able to manage the effectiveness of its operation, and can do so by reviewing the objectives of the activity, defined by its performance measures, and assessing whether they are being aided or burdened by a particular driver. This assessment results in the ability to view pitfalls and find subsequent resolutions to increase the efficiency of an activity.

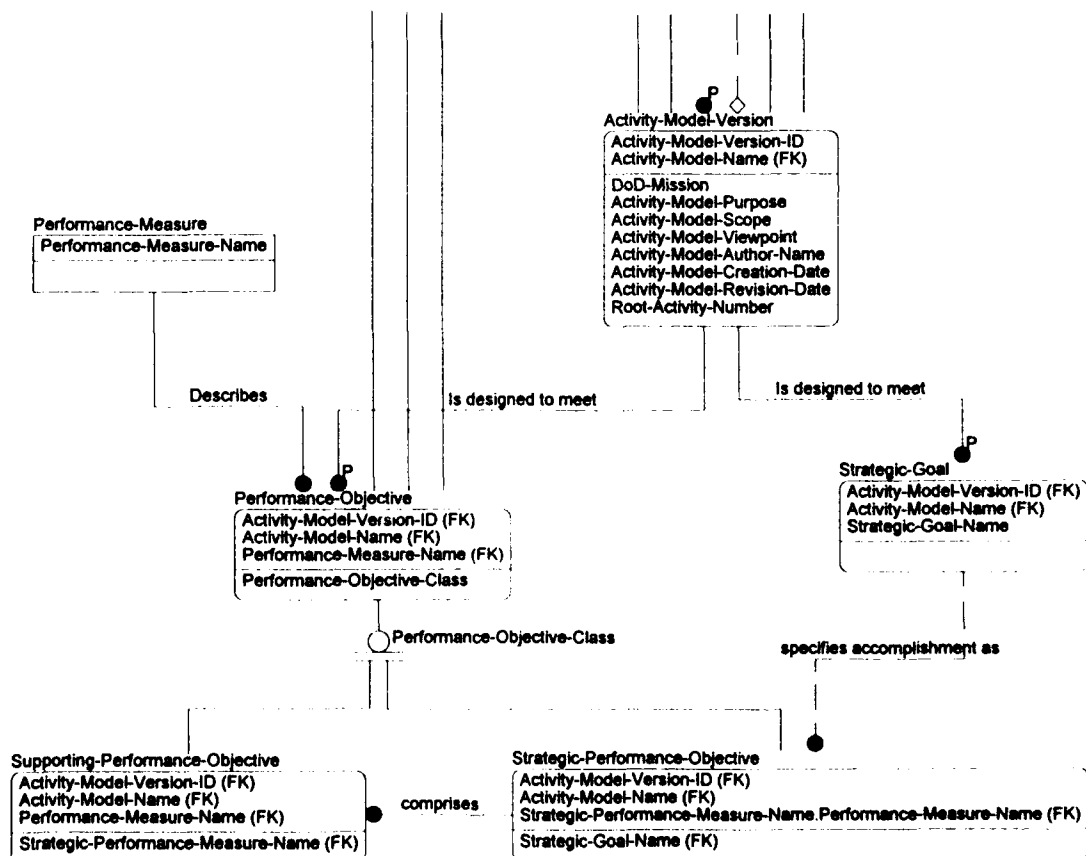
The key attributes Activity-Model-Name, Activity-Model-Version-ID, and Activity-Name migrate to the entity Activity-Performance-Objective-Driver from both parent entities (Activity-Performance-Objective and Activity-Driver), and must have the same value.



#### 4. Performance Objective to Strategic Goal

The model states that a Performance-Objective must be either a Strategic-Performance-Objective or Supporting-Performance-Objective. A Strategic-Performance-Objective must be directly related to a Strategic-Goal. The Supporting-Performance-Objectives measure some action of the business, but are not directly related to a Strategic-Goal. One or more Supporting-Performance-Objectives can make up a Strategic-Performance-Objective. In conducting FPI, this will place a constraint in that the Performance Objectives will have to be somehow related to the Strategic-Goal, either directly or in a supporting role. This business rules will more clearly focus the Performance Objectives and subsequent improvement opportunities on the changes to the essential processes.

The graphic pictured here also states that an Activity-Model-Version can be associated with one or more Strategic-Goal. The assumption was made that, within CIM and FPI, an activity model would not be created if it could not be associated with a Strategic-Goal.

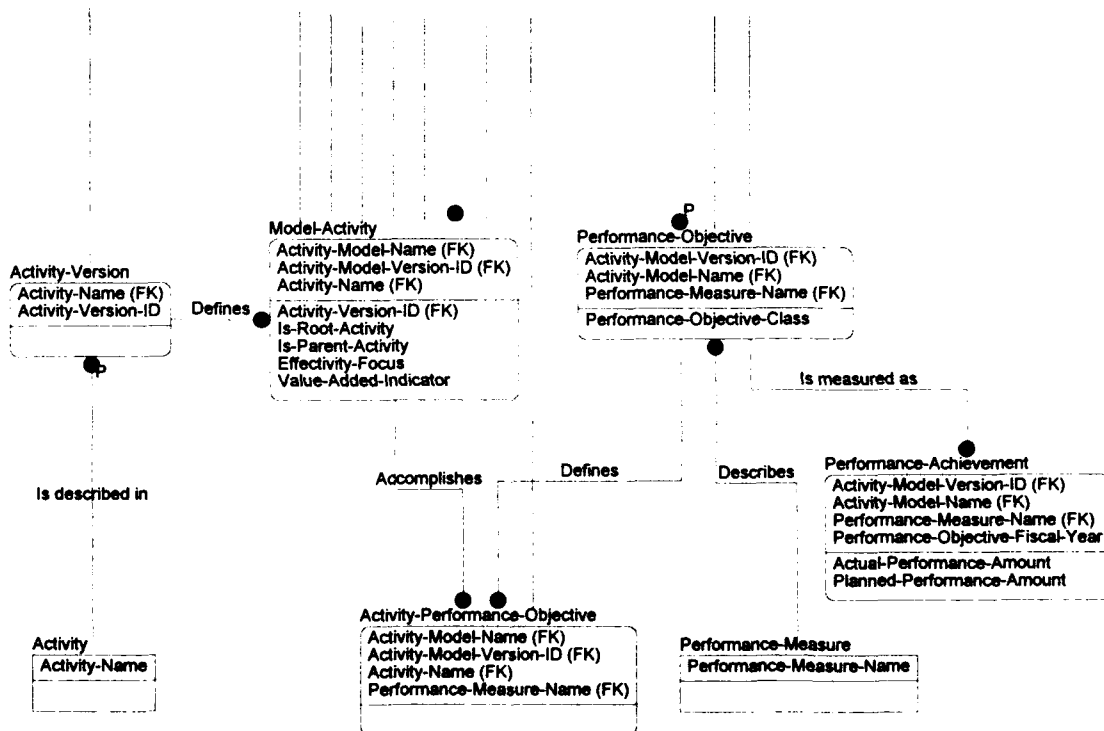


### 5. Performance Measure to Activities

An activity must have a criteria by which the effectiveness of that activity can be evaluated. The FPI Data Model identifies this criteria as Performance-Objective, which has specific Performance-Measures. The graphic illustrates that a Model-Activity that has been modeled in compliance with the FPI guidelines has one or more Performance-Objectives. This illustration completes the management circuit that requires relevant methods to evaluate the activities within an organization.

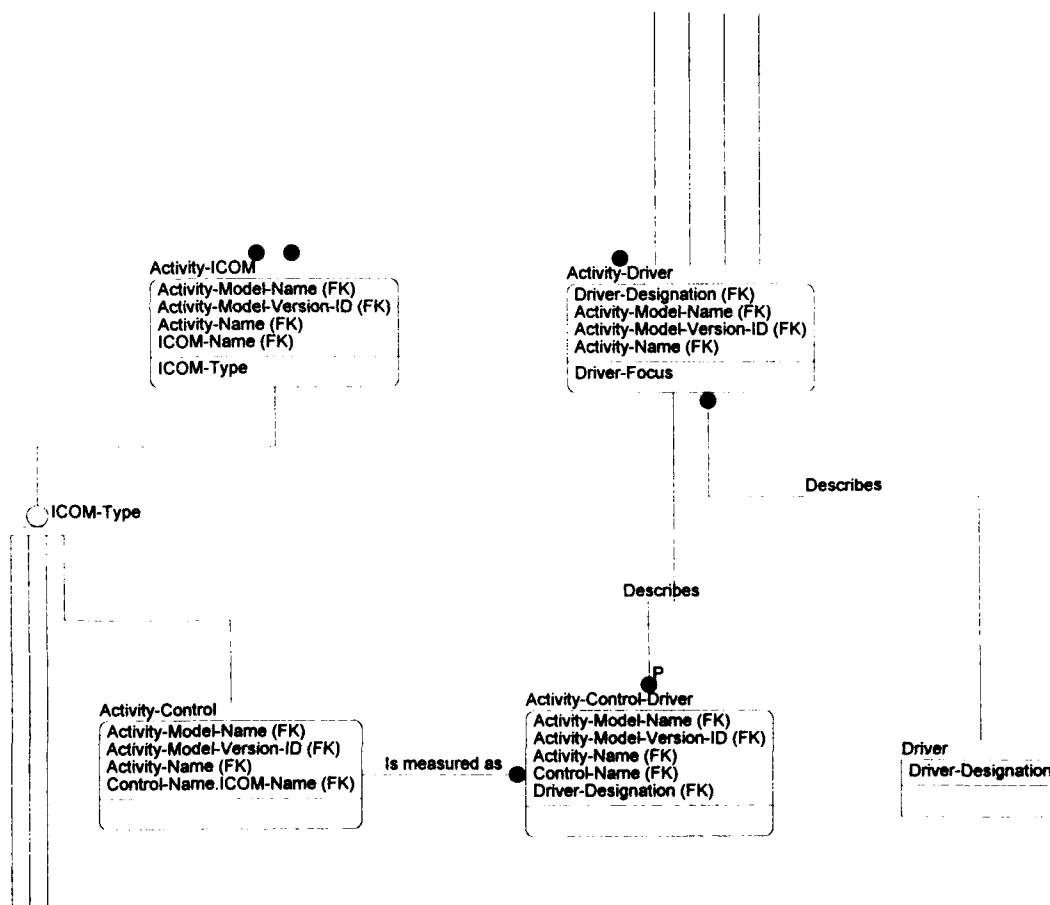
Performance-Measure can be traced to an activity for a specific model through the Activity-Performance-Objective. The key attributes Activity-Model-Name and Activity-Version-ID migrate to Activity-Performance-Objective from both Model-Activity and Performance-Objective. These attributes must have the same value.

The entity Performance-Achievement provides the means of assessing the expected and realized work accomplished for a given fiscal year. This is where the functional manager can go back to the FEA and compare the actual process improvement with the estimation.



## 6. Driver to Activity Control

This abstraction depicts the intertwining relationships between controls and drivers in the FPI process. The group needed to be able to connect the driver at the Activity level. The Activity-Control-Driver was used to depict the nature of this relationship. Through this associative entity, multiple instances of Activity-Control can be associated with multiple instances of Driver. The relationship states that an Activity-Driver describes at least one Activity-Control-Driver.



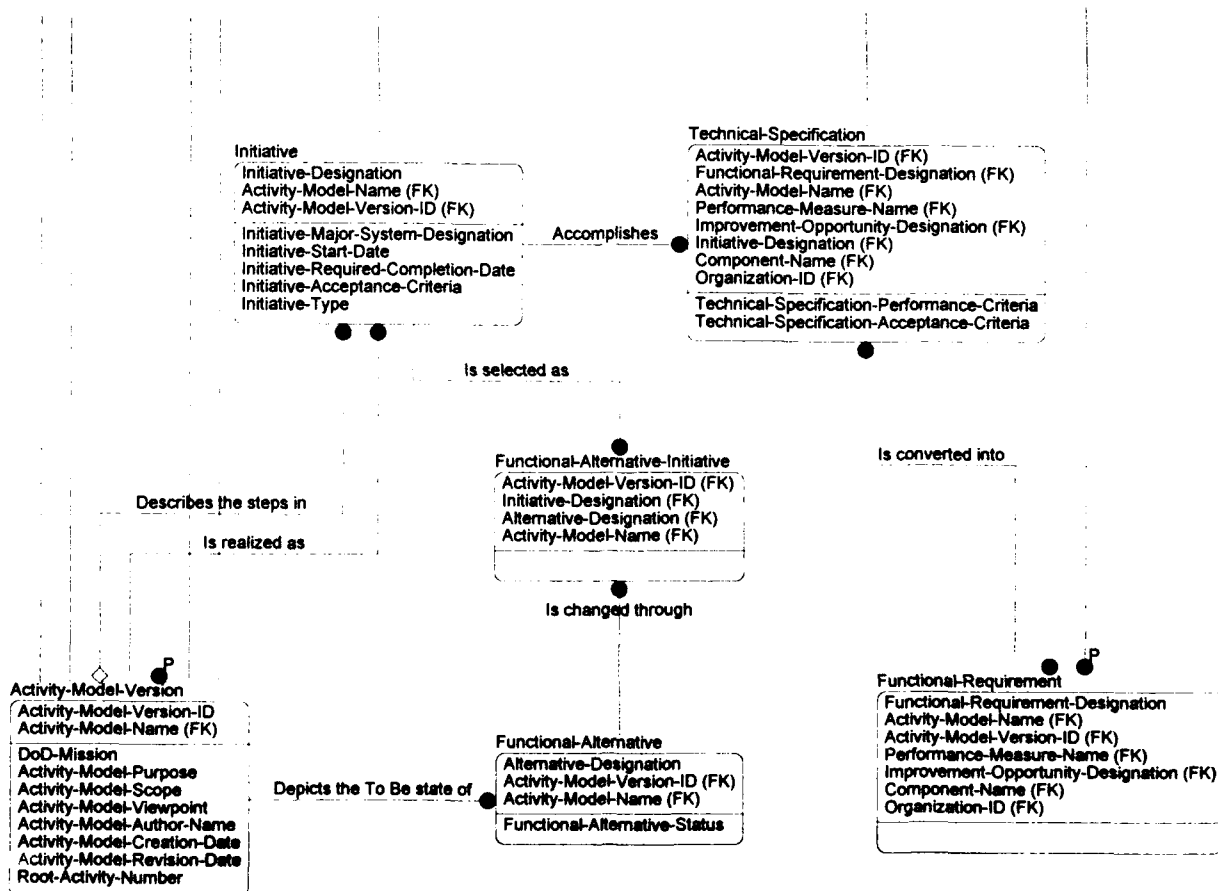
## 7. Initiative Structure

An Initiative is a one-time task that implements an improvement to the baseline of an Activity. The Initiative entity must be linked to an Activity-Model-Version, and accomplishes one or more Technical-Specifications.

Activity-Model-Version also has a non-identifying relationship with Initiative. The attributes migrate to the non-key position, and are role named "Initiative-Activity-Model-Name" and "Initiative-Activity-Model-Version-ID". This relationship states that an Activity-Model-Version can be used to describe the steps in an Initiative. Through these dual relationships, the Initiative entity tells us both the Activity-Model-Version realized by the Initiative, and the Activity-Model-Version for the Initiative itself.

Functional-Alternative and Initiative are the parent entities for the associative entity Functional-Alternative-Initiative, which states that an initiative can have multiple alternatives, and an alternative can be a part of more than one initiative.

Initiative can be linked to a Functional-Requirement through the associative entity Technical-Specification. The associative entity allows a functional requirement to serve more than one initiative, and an initiative to accomplish more than one functional requirement.

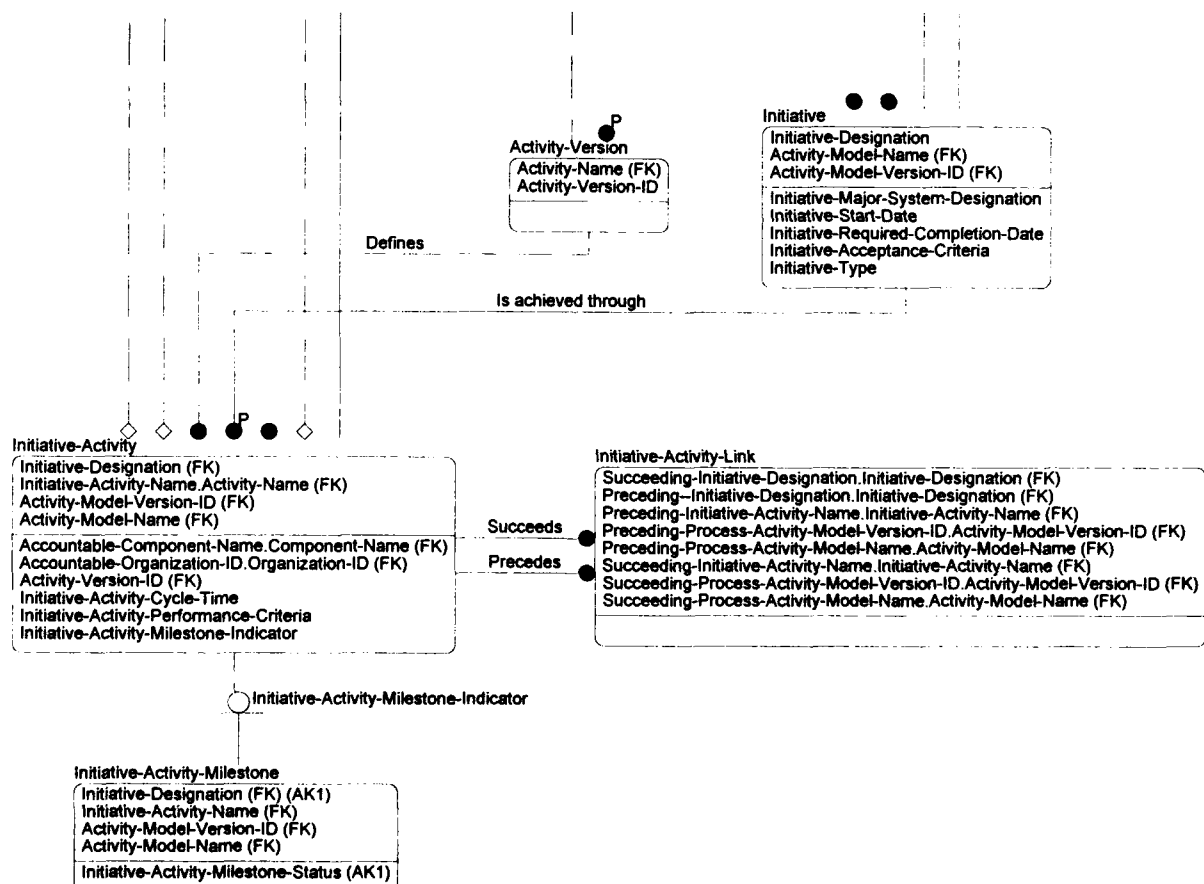




## 8. Initiative Activities

An Initiative is achieved through one or more Initiative-Activities. The non-identifying relationship from Activity-Version to Initiative-Activity migrates with a split key; the Activity-Name migrates to key position in Initiative-Activity and is role named "Initiative-Activity-Name". The Activity-Version-ID is not necessary to uniquely identify an Initiative-Activity and migrates to non-key position.

Initiative-Activity-Link was created to provide information about the sequencing of Initiative-Activities. The two identifying relationships, succeeds and precedes, provide role named keys using "Succeeding" or "Preceding". In this way, the sequential order of Initiative-Activities can be determined. A category was established for Initiative-Activity, using the attribute Initiative-Activity-Milestone-Indicator. If an Initiative-Activity is a milestone in the implementation of an Initiative, then it is an Initiative-Activity-Milestone. The status of that milestone can be tracked.



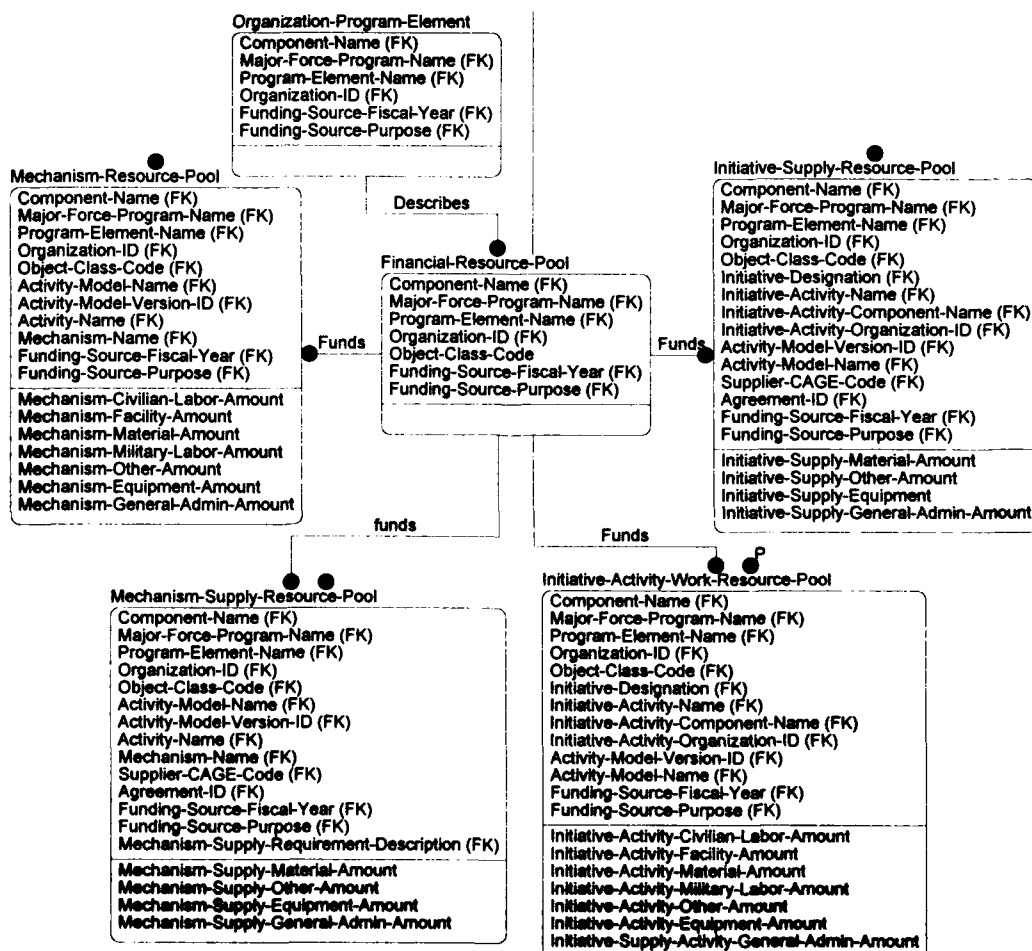
## 9. Financial Resource Pool

The Object-Class-Code identified in Financial-Resource-Pool refers to not what money is spent on, but how it is spent. The nature of the expense, and what kind of dollars were spent in order to achieve the outcome, is identified here. Object-Class-Code moves toward natural expense categories. This is a transition point to get to the cost element and what it tries to accomplish. The closest PPBS comes to the idea of cost category or spending is Object-Class-Code.

Obligation (an accounting idea) catches the way the budget is actually spent. This led to the idea of a Financial-Resource-Pool. The linkage in PPBS to the other areas of the FPI model is in Financial-Resource-Pool. Through the entity Organization-Program-Element, the Financial-Resource-Pool tracks the data of the Appropriation funding the pool.

The Financial-Resource-Pool funds four specific pools: Initiative-Activity-Work-Resource-Pool, Mechanism-Resource-Pool, Mechanism-Supply-Resource-Pool, and Initiative-Supply-Resource-Pool. Each pool, the related entities, and the business rules surrounding these pools are presented as topical areas within this section.

Of the four pools, two are related to activity or recurring expenses and two to initiative or investment expenses. The activity and initiative sets mirror each other. For each, one pool depicts internal costs and the other costs for goods or services acquired through a supplier (may be another DoD Service/Agency, non-DoD government, or contractor as depicted in topical area #11).

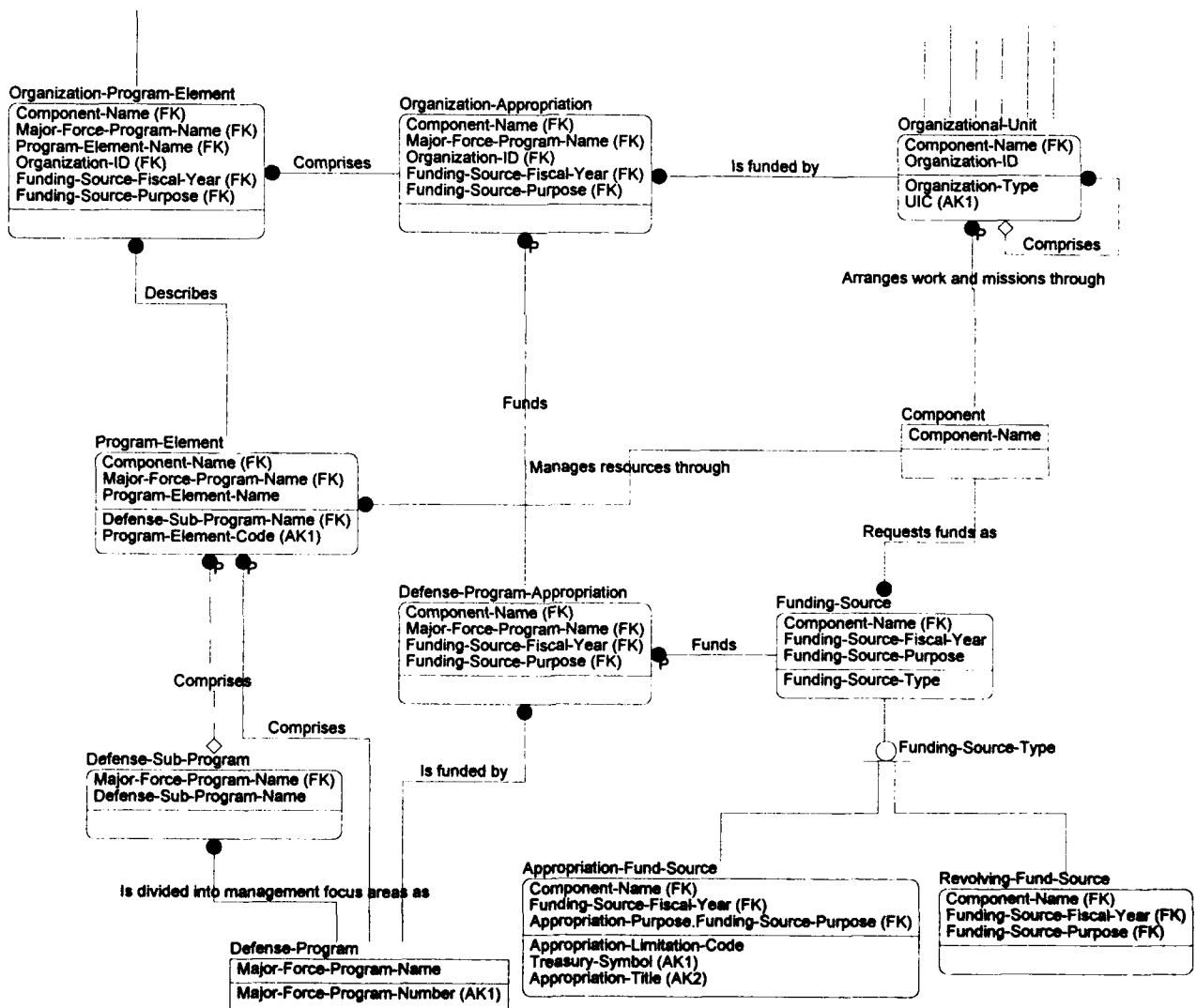


### 10. Organizations to Appropriations

This abstraction depicts the entities that tie the organizational structure to the budget structure. The model states that Defense-Programs may have Defense-Sub-Programs, and always have at least one Program-Element.

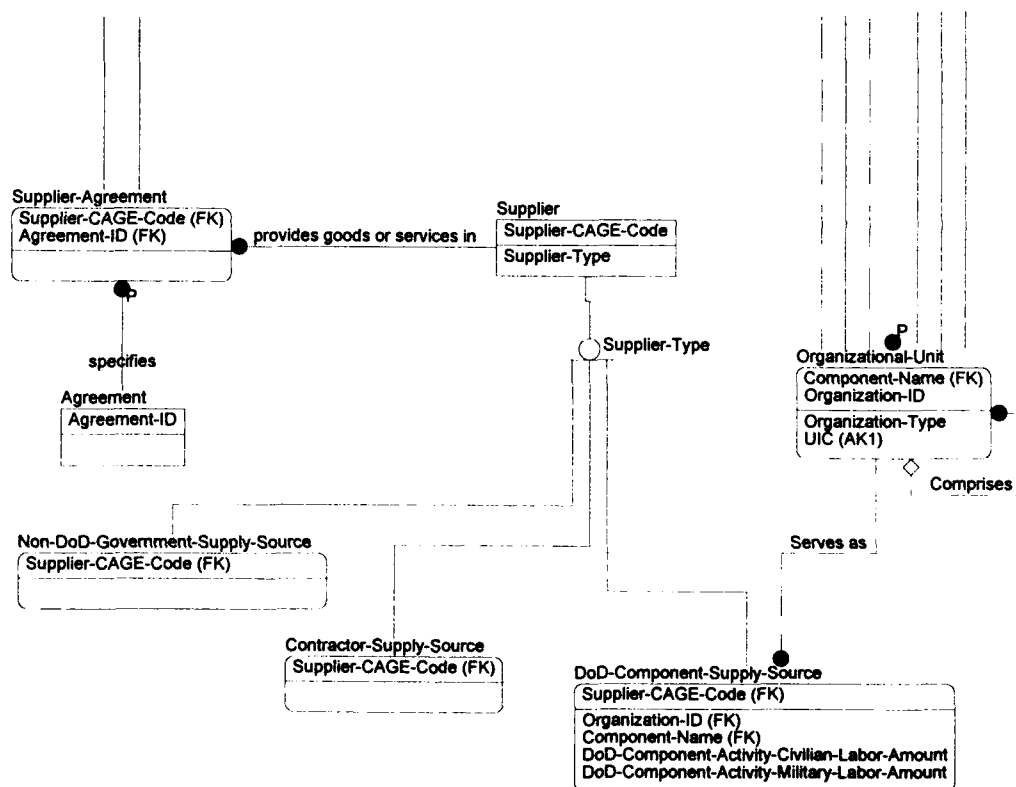
A Defense-Program can have many Appropriations, and a Defense-Program is composed of many Program-Elements. This infers a Program-Element can be related to many Appropriations. This was questioned by group members, and should be resolved in Phase II.

The Organization-Program-Element provides the linkage to Financial-Resource-Pool. It is through this linkage that the resources funding activities and initiatives can be traced back to the budget.



## 11. Supplier Types

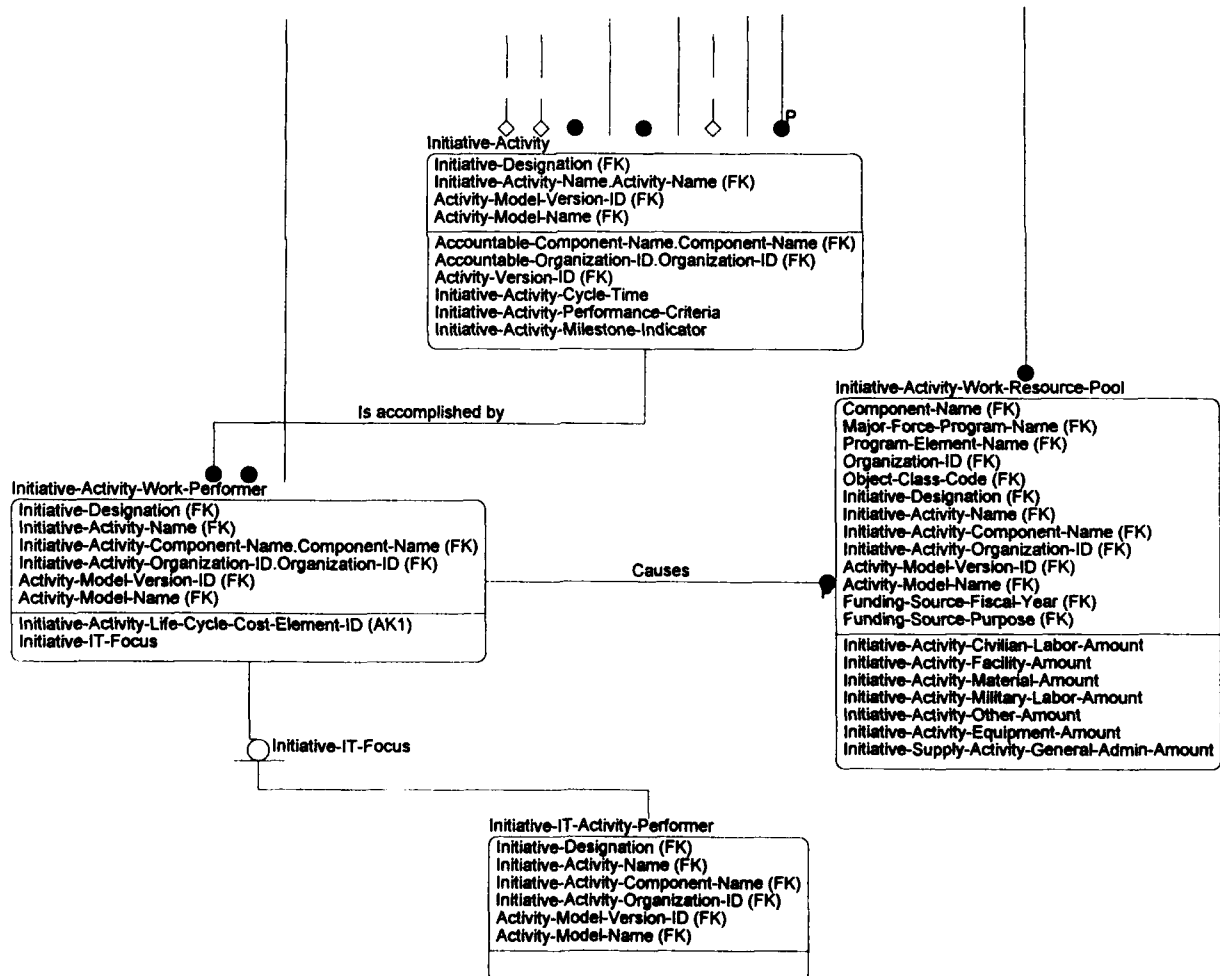
Supplier is the parent entity of a complete category consisting of three category entities: Non-DoD-Government-Supply-Source, Contractor-Supply-Source, and DoD-Component-Supply-Source. The complete category indicates that a supplier must be one of these three types. The attribute Supplier-Source-Type is the discriminator for the category. The relationship depicted shows that the Organizational-Unit can serve as a DoD-Component-Supply-Source. The Supplier is also linked to the Agreement through the Supplier-Agreement entity. The use of this entity enables each supplier to provide services through more than one agreement, and for an agreement to be applied to more than one supplier. Although not depicted in this picture, the Supplier-Agreement is a parent entity to the Mechanism-Supply-Agreement and the Initiative-Supply-Agreement, providing the linkage to the recurring and one-time activities they are providing products or services to.



## 12. Initiative Activity Work Resource Pool

This pool reflects the internal funding of a one-time, or investment, activity. An Initiative-Activity-Work-Performer is the individual or organization that is allocated to or accomplishes a project (Initiative-Activity). The Initiative-Activity may have multiple work performers. The model captures whether or not the work performer is Information Technology related using a category relationship. The focus on whether or not a work performer is related to IT was determined by questioning whether the computer is there because the person is there, or if the person is there because the computer is there. For example, a person whose job within an initiative is to provide technical support on an information system, that person is an IT related cost. If the person uses an information system to perform the functional task, the person is not an IT related cost.

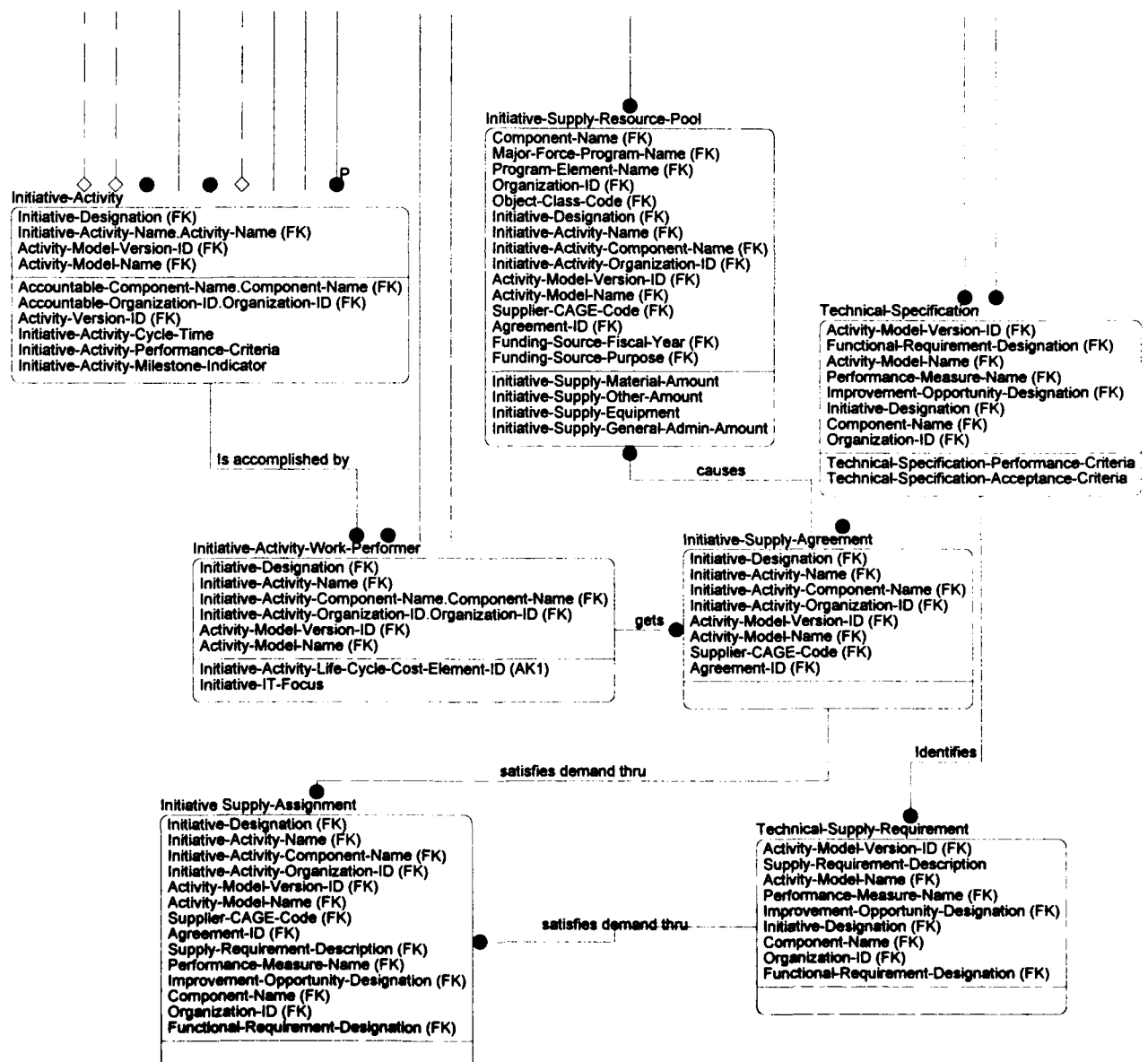
The Initiative-Activity-Work-Resource-Pool is the funding source for the work performer, and provides the link back to the budgeting process. The non-key attributes reflect the IDA FEA Model software cost categories as reviewed by this group.



### 13. Initiative Supply Resource Pool

This pool depicts the funding of outside resources needed to perform an activity for an initiative (one-time or investment activity). The Initiative-Activity-Work-Performer may need to accomplish an Initiative-Activity through an outside source, the Initiative-Supply-Agreement. These resources are funded through the Initiative-Supply-Resource-Pool. This in turn links the pool back to the budget.

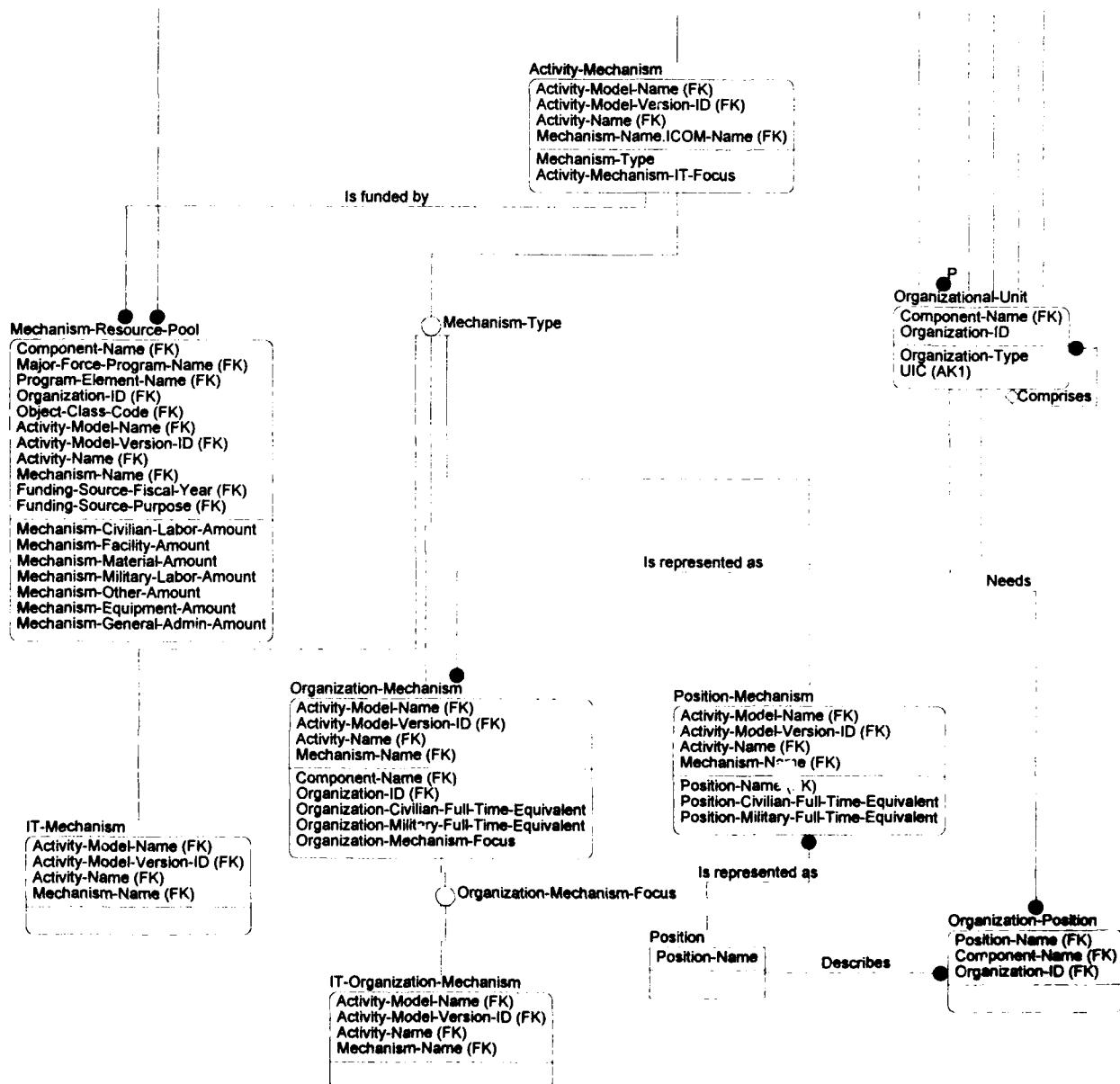
The Technical-Specification, which is a functional requirement defined at the specific level of detail needed for acquisition or implementation, is the parent entity to Technical-Supply-Requirement. The Technical-Supply-Requirement provides a greater level of detail, such as the amount of a specific supply or service required. A work performer may use multiple sources to satisfy a requirement, and a Technical-Supply-Requirement may be satisfied through multiple sources. The entity Initiative-Supply-Assignment represents the product or service that satisfies the requirement, and the source supplying it.



#### 14. Mechanism Resource Pool

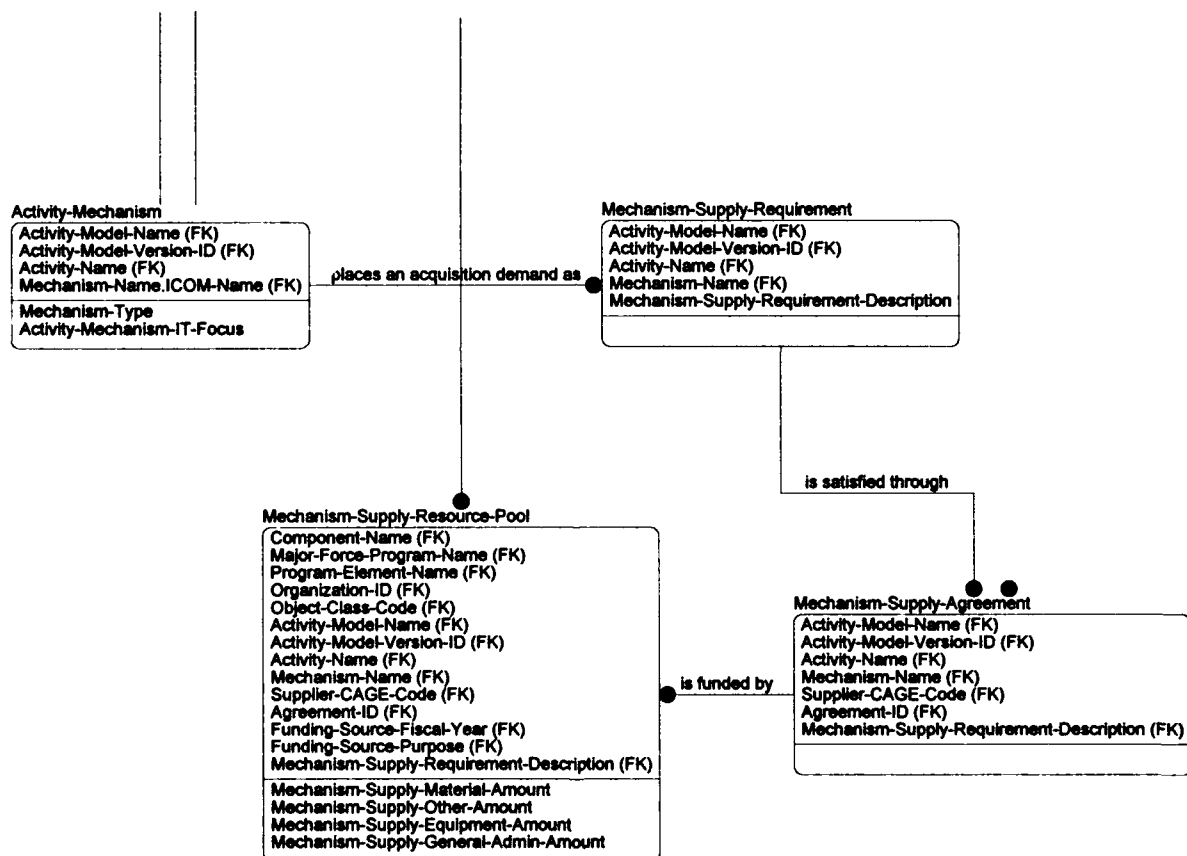
The Mechanism-Resource-Pool is the funding that supports the internal requirements of a recurring activity. The Activity-Mechanism is funded by the Mechanism-Resource-Pool, which links back to the budget dollars. The recurring activity dollars flow through Activity-Mechanisms.

The Activity-Mechanism may be depicted as a type: position, organization, or Information Technology. Because this is an incomplete category, an Activity-Mechanism may not be one of the types depicted. An Organization-Mechanism can be further categorized as being IT related. This ensures that IT resources provided by another organization can be accounted for, thus providing the ability to more completely collect the IT-related costs for those functional managers required to use these figures in other processes, such IT 43 reporting requirements.



### 15. Mechanism Supply Resource Pool

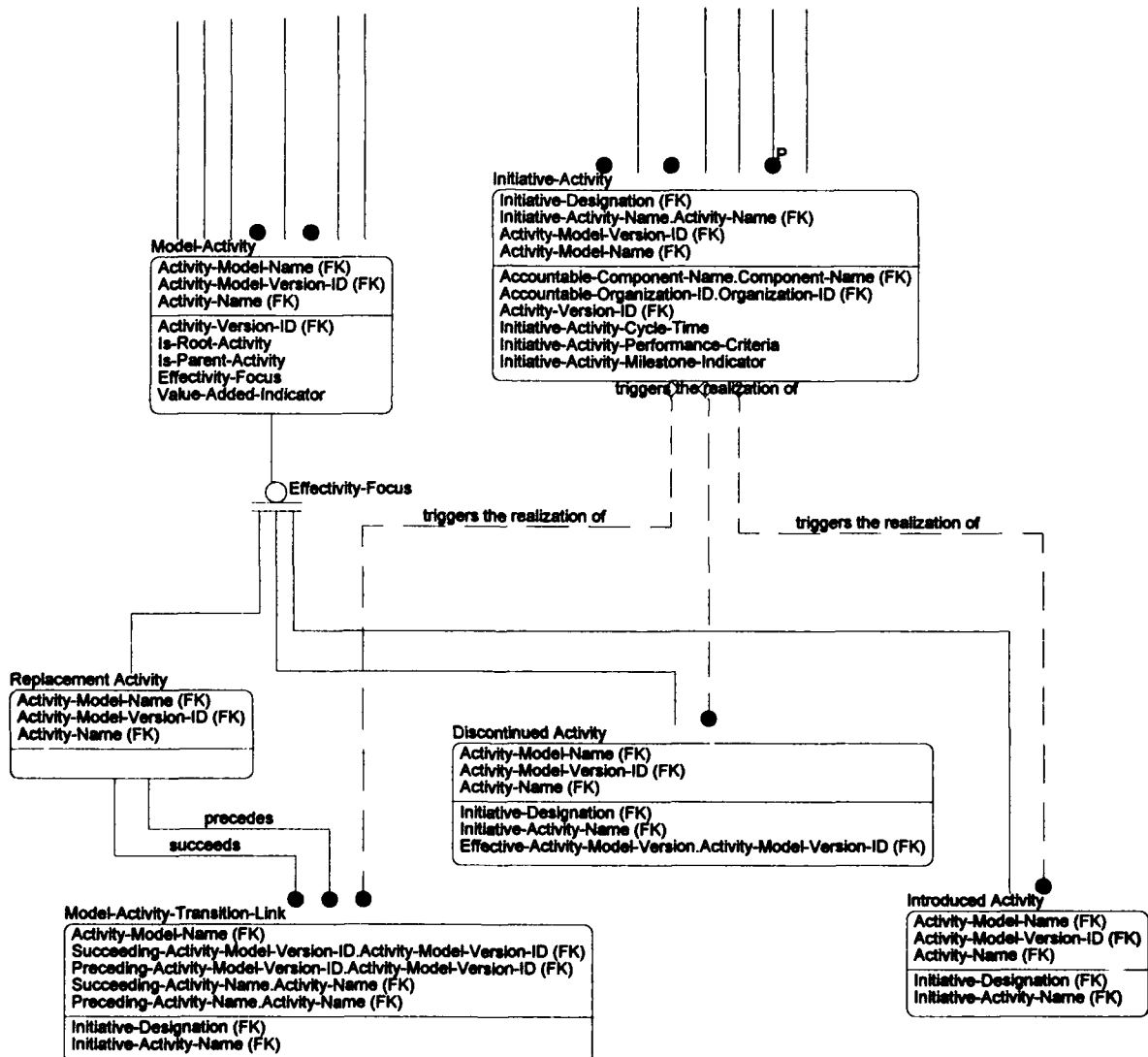
The Mechanism-Supply-Resource-Pool depicts the funding that supports external resources required to accomplish a recurring activity. The Activity-Mechanism can have more than one requirement, and the requirement can be met through the agreement. This pool is analogous to the Initiative-Supply-Resource-Pool, although the relationships are less complicated. Typically, replacements (such as replacing a old PC) are funded through this pool.

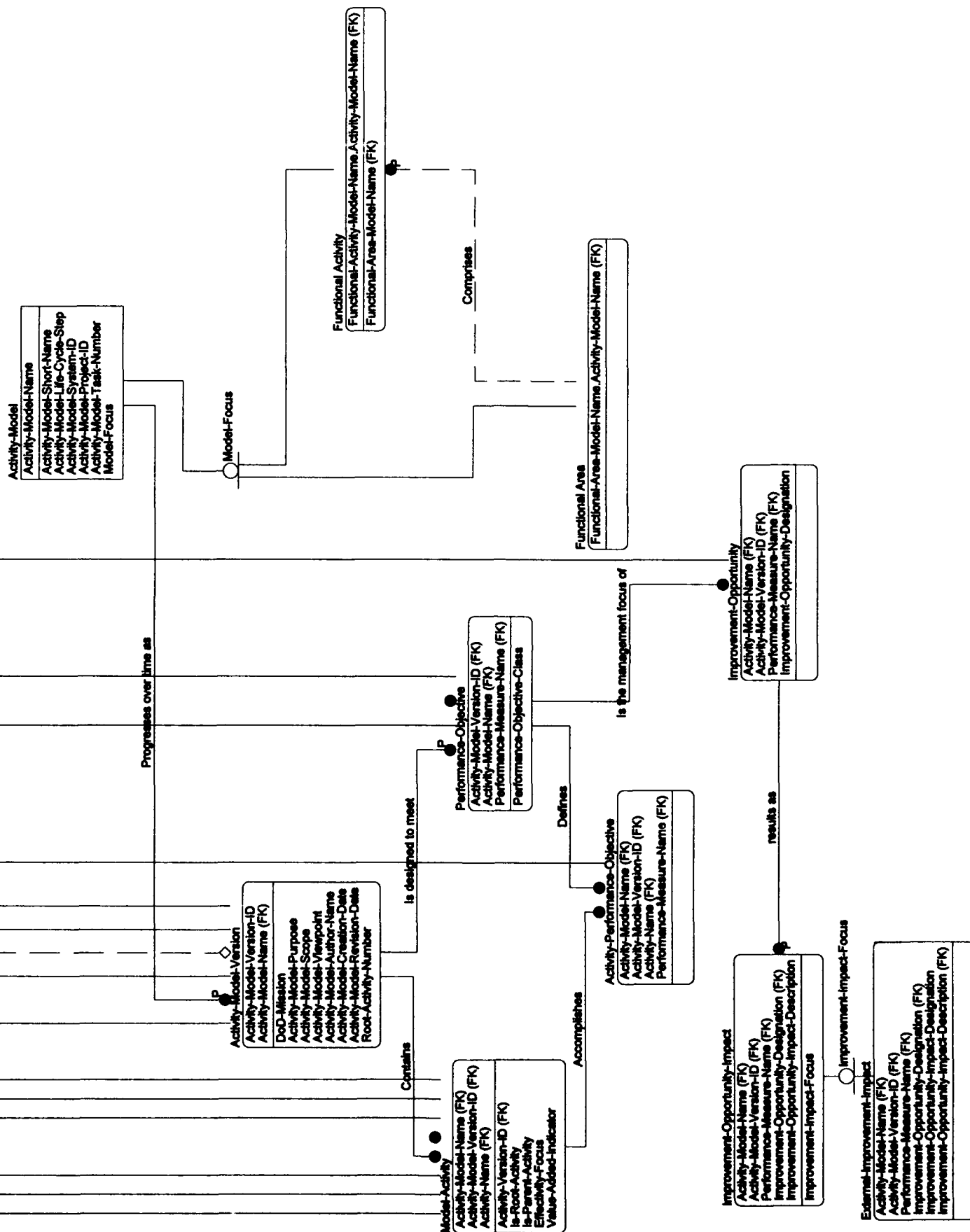




## 16. Initiative/Recurring Activity Linkage

The view depicted here shows how the completion of a step in an initiative enables the improvement of the process, thus beginning the realization of savings. The entity Model-Activity has three subtypes: the replacement, discontinued, or introduced activity. The replacement activity includes changed, combined, or split activities. The entity Model-Activity-Transition-Link provides the means to track how the activities are changed. When an Initiative-Activity is complete, it triggers the realization of these changes.





## **4.5 Business Rule Abstractions**

### **Business Rule Affect on FPI Process**

#### **IDEF0 Activity Mechanisms**

Ties funding to Operational Activities life cycle phase..  
Recognizes activity mechanisms as funding pipelines.

##### **Related Entities**

Activity-Mechanism

IT-Mechanism

IT-Organization-Mechanism

Mechanism-Resource-Pool

Mechanism-Supply-Agreement

Mechanism-Supply-Resource-Pool

Mechanism-Supply-Requirement

Model-Activity

Organization-Mechanism

Position-Mechanism

#### **Baseline Savings**

Firmly links completion of initiative steps (activities) to recurring activities.  
Provides path to those accountable for the initiative activities.  
Addresses effectivity control/change management.

##### **Related Entities**

Discontinued Activity

Initiative

Initiative-Activity

Initiative-Activity-Link

Introduced Activity

Model-Activity

Model-Activity-Transition-Link

Replacement Activity

**Drivers**

Establishes cause/effect relationships between:

Cost drivers and performance measures.

IDEF0 activity controls and cost pools.

Establishes relationships between IDEF0 models and Activity Based Costing

**Related Entities**

Activity-Control

Activity-Control-Driver

Activity-Driver

Activity-Performance-Objective-Driver

Activity-Workload

Cost-Driver

Driver

Financial-Resource-Pool-Driver

Performance-Driver

Schedule-Driver

**Activity-Based Initiative**

Introduces concept of activities to initiatives possibly enabling common methods and development of Bill of Activities/Materials.

Provides path between activity model version effectivity control and enabling contracts, etc.

**Related Entities**

Activity-Model-Version

Initiative

Initiative Supply-Assignment

Initiative-Activity-Work-Resource-Pool

Initiative-Activity-Milestone

Initiative-Activity-Work-Performer

Initiative-Activity

Initiative-Activity-Link

Initiative-IT-Activity-Performer

Initiative-Supply-Agreement

Initiative-Supply-Resource-Pool

Model-Activity

Performance-Objective

Supplier-Agreement

**Improvement Opportunities**

Establishes requirement for improvement opportunities meeting performance measures.  
Establishes position within higher-level contextual activities for benefits outside functional scope.  
Establishes path to initiatives through functional requirements and resulting technical specifications.  
Establishes path between improvement opportunities and activities.

**Related Entities**

Activity-Model-Version  
Activity-Performance-Objective  
External-Improvement-Impact  
Functional-Alternative  
Functional-Alternative-Initiative  
Functional-Requirement  
Improvement-Opportunity-Impact  
Improvement-Opportunity  
Initiative  
Model-Activity  
Non-Value-Added-Activity  
Performance-Objective  
Technical-Specification  
Value-Added-Activity

**Performance Measurement**

Ties performance measures to strategic goals.  
Establishes tie between improvement opportunities and initiatives.  
Establishes relationship to activities and their attributes, e.g., activity outputs and controls.  
Establishes performance measurement in support of functional areas and activities.

**Related Entities**

Activity-Control-Driver  
Activity-Model-Version  
Activity-Performance-Objective-Driver  
Activity-Performance-Objective  
Activity-Workload  
Functional Activity  
Functional Area  
Improvement-Opportunity  
Initiative  
Initiative-Activity  
Model-Activity  
Performance-Achievement  
Performance-Measure  
Performance-Objective  
Primary-Output  
Strategic-Goal  
Strategic-Performance-Objective  
Supporting-Performance-Objective

## 4.6 Object Analysis

The Object Analysis correlates areas of major interest with the entities from the FPI Integrated Data Model. This section is provided in two parts: the first part is grouped by object area, listing the entities used in each; the second part is grouped by entity, referencing the object areas.

### 4.6.1 Object Areas and the Entities They Use

#### OMB 43 Series

OMB IT 43 reporting describes funds identified for information technology (IT) development and modernization (43A1 series), and IT operations and maintenance (43A2 Series). The other series (4BC through 43F) present different aspects of the same funding.

**43A** summarizes detail supporting OMB & Congressional reporting threshold of \$2M in IT development and modernization expenditures.

**43A-1** is development and modernization costs falling within threshold costs of \$25M-100M. The 43A-1 is required by Congress (since 1986) and is now required by OMB as a formal exhibit.

<b>Object Area:</b>	<b>Entity:</b>
43A-1	Initiative
43A-1	Initiative Supply-Assignment
43A-1	Initiative-Activity-Work-Resource-Pool
43A-1	Initiative-Activity-Milestone
43A-1	Initiative-Activity-Work-Performer
43A-1	Initiative-Activity
43A-1	Initiative-IT-Activity-Performer
43A-1	Initiative-Supply-Agreement
43A-1	Initiative-Supply-Resource-Pool

**43A-1A** identifies each major system undergoing development or modernization.

<b>Object Area:</b>	<b>Entity:</b>
43A-1A	Activity-Model
43A-1A	Functional Activity
43A-1A	Functional Area
43A-1A	Functional Alternative Initiative
43A-1A	Initiative
43A-1A	Initiative Supply-Assignment
43A-1A	Initiative-Activity-Work-Resource-Pool
43A-1A	Initiative-Activity-Milestone
43A-1A	Initiative-Activity-Work-Performer
43A-1A	Initiative-Activity
43A-1A	Initiative-IT-Activity-Performer
43A-1A	Initiative-Supply-Agreement
43A-1A	Initiative-Supply-Resource-Pool

**43A-1B** identifies development and modernization funds spent for each non-major system.

<b>Object Area:</b>	<b>Entity:</b>
43A-1B	Activity-Model
43A-1B	Functional Activity
43A-1B	Functional Area
43A-1B	Functional Alternative Initiative
43A-1B	Initiative
43A-1B	Initiative Supply-Assignment
43A-1B	Initiative-Activity-Work-Resource-Pool
43A-1B	Initiative-Activity-Milestone
43A-1B	Initiative-Activity-Work-Performer
43A-1B	Initiative-Activity
43A-1B	Initiative-IT-Activity-Performer
43A-1B	Initiative-Supply-Agreement
43A-1B	Initiative-Supply-Resource-Pool

**43A-1C** summarizes other miscellaneous development and modernization funds.

<b>Object Area:</b>	<b>Entity:</b>
43A-1C	Initiative
43A-1C	Initiative Supply-Assignment
43A-1C	Initiative-Activity-Work-Resource-Pool
43A-1C	Initiative-Activity-Milestone
43A-1C	Initiative-Activity-Work-Performer
43A-1C	Initiative-Activity
43A-1C	Initiative-IT-Activity-Performer
43A-1C	Initiative-Supply-Agreement
43A-1C	Initiative-Supply-Resource-Pool

**43A-1C1** reports development and modernization costs by CIM functional area.

<b>Object Area:</b>	<b>Entity:</b>
43A-1C1	Activity-Model
43A-1C1	Functional Activity
43A-1C1	Functional Area
43A-1C1	Functional Alternative Initiative
43A-1C1	Initiative
43A-1C1	Initiative Supply-Assignment
43A-1C1	Initiative-Activity-Work-Resource-Pool
43A-1C1	Initiative-Activity-Milestone
43A-1C1	Initiative-Activity-Work-Performer
43A-1C1	Initiative-Activity
43A-1C1	Initiative-IT-Activity-Performer
43A-1C1	Initiative-Supply-Agreement
43A-1C1	Initiative-Supply-Resource-Pool

**43A-2** describes the operational and maintenance funding of fielded, or baseline, systems.

<b>Object Area:</b>	<b>Entity:</b>
43A-2	IT-Mechanism (indicates system designation)
43A-2	IT-Organization-Mechanism
43A-2	Mechanism-Resource-Pool
43A-2	Mechanism-Supply-Agreement
43A-2	Mechanism-Supply-Resource-Pool
43A-2	Mechanism-Supply-Requirement

**43-2A** reports operational and maintenance funding by system within CIM functional area.

<b>Object Area:</b>	<b>Entity:</b>
43A-2A	Activity-Model
43A-2A	Functional Activity
43A-2A	Functional Area
43A-2A	IT-Mechanism (indicates system designation)
43A-2A	IT-Organization-Mechanism
43A-2A	Mechanism-Resource-Pool
43A-2A	Mechanism-Supply-Agreement
43A-2A	Mechanism-Supply-Resource-Pool
43A-2A	Mechanism-Supply-Requirement

**43B** describes funds for seven spending categories: contracts, acquisitions that relate to capital investments items, rental, commercial services, etc., when system costs exceed \$5M over the FYDP. 43B satisfies paperwork reduction act for five year acquisition plan. It is required by OMB, and is reviewed, although not required, by Congress.

<b>Object Area:</b>	<b>Entity:</b>
43B	Agreement
43B	Contractor-Supply-Source
43B	DoD-Component-Supply-Source
43B	IT-Mechanism
43B	Initiative
43B	Initiative Supply-Assignment
43B	Initiative-Activity-Work-Performer
43B	Initiative-IT-Activity-Performer
43B	Initiative-Supply-Agreement
43B	Initiative-Supply-Resource-Pool
43B	Mechanism-Supply-Agreement
43B	Mechanism-Supply-Resource-Pool
43B	Mechanism-Supply-Requirement
43B	Non-DoD-Government-Supply-Source



**43C** presents a narrative summary for each major system, including: milestone schedule, project manager, life cycle costs, sunk costs, etc. Similar in content to IRM quarterly reports.

<b>Object Area:</b>	<b>Entity:</b>
43C	Discontinued Activity
43C	Functional-Requirement
43C	IT-Mechanism (indicates system designation)
43C	IT-Organization-Mechanism
43C	Improvement-Opportunity-Impact
43C	Improvement-Opportunity
43C	Initiative (indicates system designation)
43C	Initiative Supply-Assignment
43C	Initiative-Activity-Work-Resource-Pool
43C	Initiative-Activity-Milestone
43C	Initiative-Activity-Work-Performer
43C	Initiative-Activity
43C	Initiative-Activity-Link
43C	Initiative-IT-Activity-Performer
43C	Initiative-Supply-Agreement
43C	Initiative-Supply-Resource-Pool
43C	Introduced Activity
43C	Mechanism-Resource-Pool
43C	Mechanism-Supply-Agreement
43C	Mechanism-Supply-Resource-Pool
43C	Mechanism-Supply-Requirement
43C	Replacement Activity
43C	Technical-Specification

**43D** describes Indefinite Delivery, Indefinite Quantity (IDIQ) Contracts meeting a threshold of \$2M/FY, identifying the use of umbrella contracts. 43D is a collective effort of the contract originator and various involved users.

<b>Object Area:</b>	<b>Entity:</b>
43D	Agreement
43D	Contractor-Supply-Source
43D	DoD-Component-Supply-Source
43D	Initiative Supply-Assignment
43D	Initiative-Activity
43D	Initiative-IT-Activity-Performer
43D	Initiative-Supply-Agreement
43D	Initiative-Supply-Resource-Pool
43D	Mechanism-Supply-Agreement
43D	Mechanism-Supply-Resource-Pool
43D	Mechanism-Supply-Requirement
43D	Non-DoD-Government-Supply-Source
43D	Supplier
43D	Supplier-Agreement
43D	Technical-Supply-Requirement

**43E** tracks software design activities, summarizing money spent on Central Design Activities (CDA). Congressional reporting threshold is \$5M.

<b>Object Area:</b>	<b>Entity:</b>
43E	Initiative Supply-Assignment
43E	Initiative-Activity-Work-Resource-Pool
43E	Initiative-Activity-Work-Performer
43E	Initiative-Activity
43E	Initiative-IT-Activity-Performer (depicts CDA)
43E	Initiative-Supply-Agreement
43E	Initiative-Supply-Resource-Pool

**43E-1** reports Central Design Activities (CDA) by system.

<b>Object Area:</b>	<b>Entity:</b>
43E-1	Initiative (indicates system designation)
43E-1	Initiative Supply-Assignment
43E-1	Initiative-Activity-Work-Resource-Pool
43E-1	Initiative-Activity-Work-Performer
43E-1	Initiative-Activity
43E-1	Initiative-IT-Activity-Performer (depicts CDA)
43E-1	Initiative-Supply-Agreement
43E-1	Initiative-Supply-Resource-Pool

**43F** identifies development and modernization, and operational and maintenance funds spent on the financial functions within any system, regardless of threshold.

<b>Object Area:</b>	<b>Entity:</b>
43F	IT-Mechanism
43F	IT-Organization-Mechanism
43F	Initiative
43F	Initiative Supply-Assignment
43F	Initiative-Activity-Work-Resource-Pool
43F	Initiative-Activity-Milestone
43F	Initiative-Activity-Work-Performer
43F	Initiative-Activity
43F	Initiative-IT-Activity-Performer
43F	Initiative-Supply-Agreement
43F	Initiative-Supply-Resource-Pool
43F	Mechanism-Resource-Pool
43F	Mechanism-Supply-Agreement
43F	Mechanism-Supply-Resource-Pool
43F	Mechanism-Supply-Requirement

**Life Cycle Cost/Benefit Reporting**

The LCC/B (life cycle cost/benefit) cost element structure provides a standard vocabulary for the identification and classification of cost elements to be used with cost analysis which will facilitate program review, reduce redundant staff actions, and provide the framework for the development of specific program cost estimates.

<b>Object Area:</b>	<b>Entity:</b>
LCC/B cost element structure	IT-Mechanism
LCC/B cost element structure	IT-Organization-Mechanism
LCC/B cost element structure	Initiative (indicates system designation)
LCC/B cost element structure	Initiative Supply-Assignment
LCC/B cost element structure	Initiative-Activity-Work-Resource-Pool
LCC/B cost element structure	Initiative-Activity-Milestone
LCC/B cost element structure	Initiative-Activity-Work-Performer
LCC/B cost element structure	Initiative-Activity
LCC/B cost element structure	Initiative-IT-Activity-Performer
LCC/B cost element structure	Initiative-Supply-Agreement
LCC/B cost element structure	Initiative-Supply-Resource-Pool
LCC/B cost element structure	Mechanism-Resource-Pool
LCC/B cost element structure	Mechanism-Supply-Agreement
LCC/B cost element structure	Mechanism-Supply-Resource-Pool
LCC/B cost element structure	Mechanism-Supply-Requirement

The **Preliminary FEA** (Functional Economic Analysis) is the principle document in the Evaluation Decision Package. It is used to conduct an initial "rough order of magnitude" assessment of proposed alternatives to the AS-IS process, data, and systems baseline based on readily available information. All information supporting the Preliminary FEA is available to the Final FEA, particularly the following:

<b>Object Area:</b>	<b>Entity:</b>
Preliminary FEA	Activity-Control-Driver
Preliminary FEA	Activity-Input
Preliminary FEA	Activity-Mechanism
Preliminary FEA	Activity-Model-Version
Preliminary FEA	Activity-Output
Preliminary FEA	Activity-Performance-Objective-Driver
Preliminary FEA	Activity-Performance-Objective
Preliminary FEA	Activity-Workload
Preliminary FEA	By-Product
Preliminary FEA	Discontinued Activity
Preliminary FEA	External-Improvement-Impact
Preliminary FEA	Financial-Resource-Pool-Driver
Preliminary FEA	Functional Activity
Preliminary FEA	Functional Area
Preliminary FEA	Functional-Alternative
Preliminary FEA	Functional-Alternative-Initiative
Preliminary FEA	Functional-Requirement
Preliminary FEA	Improvement-Opportunity-Impact
Preliminary FEA	Improvement-Opportunity
Preliminary FEA	Initiative
Preliminary FEA	Initiative-Activity
Preliminary FEA	Initiative-Activity-Link
Preliminary FEA	Introduced Activity
Preliminary FEA	Mechanism-Resource-Pool
Preliminary FEA	Model-Activity
Preliminary FEA	Model-Activity-Transition-Link
Preliminary FEA	Non-Value-Added-Activity
Preliminary FEA	Organization-Mechanism
Preliminary FEA	Organization-Position
Preliminary FEA	Organizational-Unit
Preliminary FEA	Performance-Achievement
Preliminary FEA	Performance-Measure
Preliminary FEA	Performance-Objective
Preliminary FEA	Position-Mechanism
Preliminary FEA	Primary-Output
Preliminary FEA	Replacement Activity
Preliminary FEA	Strategic-Goal
Preliminary FEA	Strategic-Performance-Objective
Preliminary FEA	Supporting-Performance-Objective
Preliminary FEA	Value-Added-Activity

The **Final FEA** is the revision to the Preliminary FEA that is included in the Approval Decision Package. It contains amore detailed analysis based on a refinement of the cost, benefit, and schedule data that were included in the Preliminary FEA.

<b>Object Area:</b>	<b>Entity:</b>
Final FEA	Activity-Workload
Final FEA	External-Improvement-Impact
Final FEA	Functional Activity
Final FEA	Functional Area
Final FEA	Functional-Alternative
Final FEA	Functional-Alternative-Initiative
Final FEA	Functional-Requirement
Final FEA	Funding-Source
Final FEA	Improvement-Opportunity-Impact
Final FEA	Improvement-Opportunity
Final FEA	Initiative
Final FEA	Initiative-Activity-Milestone
Final FEA	Initiative-Activity-Work-Performer
Final FEA	Initiative-IT-Activity-Performer
Final FEA	Performance-Objective
Final FEA	Primary-Output
Final FEA	Strategic-Goal
Final FEA	Strategic-Performance-Objective
Final FEA	Technical-Specification
Final FEA	Technical-Supply-Requirement

The **Update FEA** is a periodic progress report on the Final FEA's approved alternative through which costs and performance improvements are compared with those projected. The Update FEA provides updated decision monitoring and oversight information for use by functional managers in conducting program evaluation at key decision points.

<b>Object Area:</b>	<b>Entity:</b>
Update FEA	Activity-Model-Version
Update FEA	Activity-Performance-Objective
Update FEA	Activity-Workload
Update FEA	Agreement
Update FEA	Contractor-Supply-Source
Update FEA	Discontinued Activity
Update FEA	DoD-Component-Supply-Source
Update FEA	External-Improvement-Impact
Update FEA	Functional-Requirement
Update FEA	IT-Mechanism
Update FEA	IT-Organization-Mechanism
Update FEA	Improvement-Opportunity-Impact
Update FEA	Improvement-Opportunity
Update FEA	Initiative
Update FEA	Initiative Supply-Assignment
Update FEA	Initiative-Activity-Work-Resource-Pool
Update FEA	Initiative-Activity
Update FEA	Initiative-Activity-Link
Update FEA	Initiative-Supply-Agreement
Update FEA	Initiative-Supply-Resource-Pool
Update FEA	Introduced Activity
Update FEA	Mechanism-Resource-Pool
Update FEA	Mechanism-Supply-Agreement
Update FEA	Mechanism-Supply-Resource-Pool
Update FEA	Mechanism-Supply-Requirement
Update FEA	Model-Activity
Update FEA	Model-Activity-Transition-Link
Update FEA	Non-DoD-Government-Supply-Source
Update FEA	Non-Value-Added-Activity
Update FEA	Organization-Mechanism
Update FEA	Performance-Achievement
Update FEA	Performance-Objective
Update FEA	Primary-Output
Update FEA	Replacement Activity
Update FEA	Strategic-Goal
Update FEA	Strategic-Performance-Objective
Update FEA	Supplier
Update FEA	Supplier-Agreement
Update FEA	Value-Added-Activity

**4.6.2 Entities and the Object Areas They Address**

<b>Entity:</b>	<b>Object Area:</b>
Activity-Control-Driver	Preliminary FEA
Activity-Input	Preliminary FEA
Activity-Mechanism	Preliminary FEA
Activity-Model	43A-1C1
Activity-Model	43A-2A
Activity-Model-Version	Preliminary FEA
Activity-Model-Version	Update FEA
Activity-Output	Preliminary FEA
Activity-Performance-Objective-Driver	Preliminary FEA
Activity-Performance-Objective	Preliminary FEA
Activity-Performance-Objective	Update FEA
Activity-Workload	Final FEA
Activity-Workload	Preliminary FEA
Activity-Workload	Update FEA
Agreement	43B
Agreement	43D
Agreement	Update FEA
By-Product	Preliminary FEA
Contractor-Supply-Source	43B
Contractor-Supply-Source	43D
Contractor-Supply-Source	Update FEA
Discontinued Activity	43C
Discontinued Activity	Preliminary FEA
Discontinued Activity	Update FEA
DoD-Component-Supply-Source	43B
DoD-Component-Supply-Source	43D
DoD-Component-Supply-Source	Update FEA



**Entity:****Object Area:**

External-Improvement-Impact  
External-Improvement-Impact  
External-Improvement-Impact

Final FEA  
Preliminary FEA  
Update FEA

Financial-Resource-Pool-Driver

Preliminary FEA

Functional Activity  
Functional Activity  
Functional Activity  
Functional Activity

43A-1C1  
43A-2A  
Final FEA  
Preliminary FEA

Functional Area  
Functional Area  
Functional Area  
Functional Area

43A-1C1  
43A-2A  
Final FEA  
Preliminary FEA

Functional-Alternative  
Functional-Alternative

Final FEA  
Preliminary FEA

Functional-Alternative-Initiative  
Functional-Alternative-Initiative

Final FEA  
Preliminary FEA

Functional-Requirement  
Functional-Requirement  
Functional-Requirement  
Functional-Requirement

43C  
Final FEA  
Preliminary FEA  
Update FEA

Funding-Source

Final FEA

IT-Mechanism  
IT-Mechanism  
IT-Mechanism  
IT-Mechanism  
IT-Mechanism  
IT-Mechanism  
IT-Mechanism

43A-2  
43A-2A  
43B  
43C  
43F  
LCC/B cost element structure  
Update FEA

IT-Organization-Mechanism  
IT-Organization-Mechanism  
IT-Organization-Mechanism  
IT-Organization-Mechanism  
IT-Organization-Mechanism  
IT-Organization-Mechanism

43A-2  
43A-2A  
43C  
43F  
LCC/B cost element structure  
Update FEA

**Entity:****Object Area:**

Improvement-Opportunity-Impact  
Improvement-Opportunity-Impact  
Improvement-Opportunity-Impact  
Improvement-Opportunity-Impact

43C  
Final FEA  
Preliminary FEA  
Update FEA

Improvement-Opportunity  
Improvement-Opportunity  
Improvement-Opportunity  
Improvement-Opportunity

43C  
Final FEA  
Preliminary FEA  
Update FEA

Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative  
Initiative

43A-1  
43A-1A  
43A-1B  
43A-1C  
43A-1C1  
43B  
43C  
43E-1  
43F  
Final FEA  
LCC/B cost element structure  
Preliminary FEA  
Update FEA

Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment  
Initiative Supply-Assignment

43A-1  
43A-1A  
43A-1B  
43A-1C  
43A-1C1  
43B  
43C  
43D  
43E  
43E-1  
43F  
LCC/B cost element structure  
Update FEA

**Entity:**

**Object Area:**

Initiative-Activity-Work-Resource-Pool	43A-1
Initiative-Activity-Work-Resource-Pool	43A-1A
Initiative-Activity-Work-Resource-Pool	43A-1B
Initiative-Activity-Work-Resource-Pool	43A-1C
Initiative-Activity-Work-Resource-Pool	43A-1C1
Initiative-Activity-Work-Resource-Pool	43C
Initiative-Activity-Work-Resource-Pool	43E
Initiative-Activity-Work-Resource-Pool	43E-1
Initiative-Activity-Work-Resource-Pool	43F
Initiative-Activity-Work-Resource-Pool	LCC/B cost element structure
Initiative-Activity-Work-Resource-Pool	Update FEA
Initiative-Activity-Milestone	43A-1
Initiative-Activity-Milestone	43A-1A
Initiative-Activity-Milestone	43A-1B
Initiative-Activity-Milestone	43A-1C
Initiative-Activity-Milestone	43A-1C1
Initiative-Activity-Milestone	43C
Initiative-Activity-Milestone	43F
Initiative-Activity-Milestone	Final FEA
Initiative-Activity-Milestone	LCC/B cost element structure
Initiative-Activity-Work-Performer	43A-1
Initiative-Activity-Work-Performer	43A-1A
Initiative-Activity-Work-Performer	43A-1B
Initiative-Activity-Work-Performer	43A-1C
Initiative-Activity-Work-Performer	43A-1C1
Initiative-Activity-Work-Performer	43B
Initiative-Activity-Work-Performer	43C
Initiative-Activity-Work-Performer	43E
Initiative-Activity-Work-Performer	43E-1
Initiative-Activity-Work-Performer	43F
Initiative-Activity-Work-Performer	Final FEA
Initiative-Activity-Work-Performer	LCC/B cost element structure
Initiative-Activity	43A-1
Initiative-Activity	43A-1A
Initiative-Activity	43A-1B
Initiative-Activity	43A-1C
Initiative-Activity	43A-1C1
Initiative-Activity	43C
Initiative-Activity	43D
Initiative-Activity	43E
Initiative-Activity	43E-1
Initiative-Activity	43F

**Entity:**

**Object Area:**

Initiative-Activity

LCC/B cost element structure

Initiative-Activity

Preliminary FEA

Initiative-Activity

Update FEA

Initiative-Activity-Link

43C

Initiative-Activity-Link

Preliminary FEA

Initiative-Activity-Link

Update FEA

Initiative-IT-Activity-Performer

43A-1

Initiative-IT-Activity-Performer

43A-1A

Initiative-IT-Activity-Performer

43A-1B

Initiative-IT-Activity-Performer

43A-1C

Initiative-IT-Activity-Performer

43A-1C1

Initiative-IT-Activity-Performer

43B

Initiative-IT-Activity-Performer

43C

Initiative-IT-Activity-Performer

43D

Initiative-IT-Activity-Performer

43E

Initiative-IT-Activity-Performer

43E-1

Initiative-IT-Activity-Performer

43F

Initiative-IT-Activity-Performer

Final FEA

Initiative-IT-Activity-Performer

LCC/B cost element structure

Initiative-Supply-Agreement

43A-1

Initiative-Supply-Agreement

43A-1A

Initiative-Supply-Agreement

43A-1B

Initiative-Supply-Agreement

43A-1C

Initiative-Supply-Agreement

43A-1C1

Initiative-Supply-Agreement

43B

Initiative-Supply-Agreement

43C

Initiative-Supply-Agreement

43D

Initiative-Supply-Agreement

43E

Initiative-Supply-Agreement

43E-1

Initiative-Supply-Agreement

43F

Initiative-Supply-Agreement

LCC/B cost element structure

Initiative-Supply-Agreement

Update FEA

Initiative-Supply-Resource-Pool

43A-1

Initiative-Supply-Resource-Pool

43A-1A

Initiative-Supply-Resource-Pool

43A-1B

Initiative-Supply-Resource-Pool

43A-1C

Initiative-Supply-Resource-Pool

43A-1C1

Initiative-Supply-Resource-Pool

43B

Initiative-Supply-Resource-Pool

43C

Initiative-Supply-Resource-Pool

43D

Initiative-Supply-Resource-Pool

43E

**Entity:**

**Object Area:**

Initiative-Supply-Resource-Pool  
Initiative-Supply-Resource-Pool  
Initiative-Supply-Resource-Pool  
Initiative-Supply-Resource-Pool

43E-1  
43F  
LCC/B cost element structure  
Update FEA

Introduced Activity  
Introduced Activity  
Introduced Activity

43C  
Preliminary FEA  
Update FEA

Mechanism-Resource-Pool  
Mechanism-Resource-Pool  
Mechanism-Resource-Pool  
Mechanism-Resource-Pool  
Mechanism-Resource-Pool  
Mechanism-Resource-Pool  
Mechanism-Resource-Pool

43A-2  
43A-2A  
43C  
43F  
LCC/B cost element structure  
Preliminary FEA  
Update FEA

Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement  
Mechanism-Supply-Agreement

43A-2  
43A-2A  
43B  
43C  
43D  
43F  
LCC/B cost element structure  
Update FEA

Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool  
Mechanism-Supply-Resource-Pool

43A-2  
43A-2A  
43B  
43C  
43D  
43F  
LCC/B cost element structure  
Update FEA

Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement  
Mechanism-Supply-Requirement

43A-2  
43A-2A  
43B  
43C  
43D  
43F  
LCC/B cost element structure  
Update FEA

<b>Entity:</b>	<b>Object Area:</b>
Model-Activity	Preliminary FEA
Model-Activity	Update FEA
Model-Activity-Transition-Link	Preliminary FEA
Model-Activity-Transition-Link	Update FEA
Non-DoD-Government-Supply-Source	43B
Non-DoD-Government-Supply-Source	43D
Non-DoD-Government-Supply-Source	Update FEA
Non-Value-Added-Activity	Preliminary FEA
Non-Value-Added-Activity	Update FEA
Organization-Mechanism	Preliminary FEA
Organization-Mechanism	Update FEA
Organization-Position	Preliminary FEA
Organizational-Unit	Preliminary FEA
Performance-Achievement	Preliminary FEA
Performance-Achievement	Update FEA
Performance-Measure	Preliminary FEA
Performance-Objective	Final FEA
Performance-Objective	Preliminary FEA
Performance-Objective	Update FEA
Position-Mechanism	Preliminary FEA
Primary-Output	Final FEA
Primary-Output	Preliminary FEA
Primary-Output	Update FEA
Replacement Activity	43C
Replacement Activity	Preliminary FEA
Replacement Activity	Update FEA
Strategic-Goal	Final FEA
Strategic-Goal	Preliminary FEA
Strategic-Goal	Update FEA

**Entity:****Object Area:**

Strategic-Performance-Objective  
Strategic-Performance-Objective  
Strategic-Performance-Objective

Final FEA  
Preliminary FEA  
Update FEA

Supplier  
Supplier

43D  
Update FEA

Supplier-Agreement  
Supplier-Agreement

43D  
Update FEA

Supporting-Performance-Objective

Preliminary FEA

Technical-Specification  
Technical-Specification

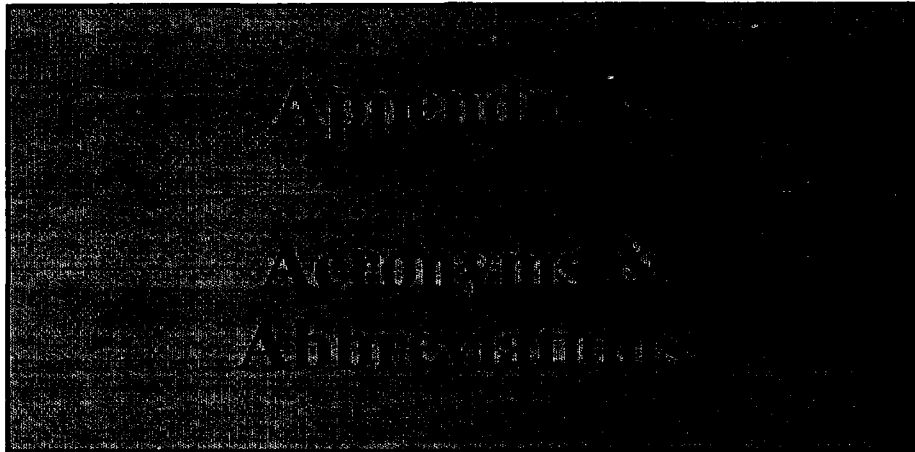
43C  
Final FEA

Technical-Supply-Requirement  
Technical-Supply-Requirement

43D  
Final FEA

Value-Added-Activity  
Value-Added-Activity

Preliminary FEA  
Update FEA





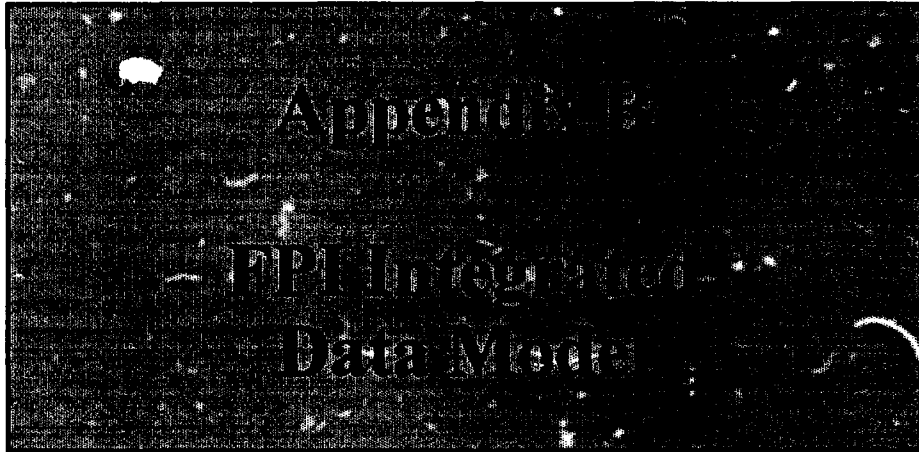
**Appendix A Acronyms & Abbreviations****A.1 Acronyms**

ABC	Activity Based Costing
AIS	Automated Information System
AK	Alternate Key
C <sup>3</sup> I	Command, Control, Communications & Intelligence
CAGE	Commercial and Government Entity
CIM	Corporate Information Management
COTS	Commercial Off-the-shelf Software
DDI	Director, Defense Information
DFAS	Defense Financial & Accounting Service
DISA	Defense Information Systems Agency
DMRD	Defense Management Review Decision
DoD	Department of Defense
DODI	Department of Defense Instruction
ECAC	Electromagnetic Compatibility and Analysis Center
FEA	Functional Economic Analysis
FK	Foreign Key
FM	Financial Management
FPI	Functional Process Improvement
FPIP	Functional Process Improvement Program
HQDA	Headquarters, Department of the Army
HQ USAF	Headquarters, United States Air Force
ICAM	Integrated Computer Aided Manufacturing
ICOM	Input, Control, Output, Mechanism
IDA	Institute for Defense Analysis
IDEF	Integrated Definition Language
IDEF-UG	IDEF Users Group
IRM	Information Resources Management
IS	Information Systems
IT	Information Technology
JLSC	Joint Logistics Systems Command
LMI	Logistics Management Institute
MAISRC	Major Automated Information System Review Council
NCA	National Command Authority

<b>OASD</b>	<b>Office of the Assistant Secretary of Defense</b>
<b>ODISC4</b>	<b>Office of the Director of Information Systems, Command, Control, Communications &amp; Computers</b>
<b>OTI</b>	<b>Office of Technical Integration</b>
<b>PA&amp;E</b>	<b>Program Analysis &amp; Evaluation</b>
<b>PBD</b>	<b>Program Budget Decision</b>
<b>PE</b>	<b>Program Element</b>
<b>P&amp;L</b>	<b>Production &amp; Logistics</b>
<b>POM</b>	<b>Program Objective Memorandum</b>
<b>PPBS</b>	<b>Program &amp; Planning Budget System</b>
<b>SMEs</b>	<b>Subject Matter Experts</b>
<b>SRA</b>	<b>Systems Research &amp; Applications</b>
<b>STRAP</b>	<b>Strategic Requirements Analysis Planning</b>
<b>UIC</b>	<b>Unit Identification Code</b>
<b>USACE</b>	<b>U.S. Army Corps of Engineers</b>
<b>USA FM</b>	<b>U.S. Army Financial Management</b>
<b>WBS</b>	<b>Work Breakdown Structure</b>

**A.2 Abbreviations**

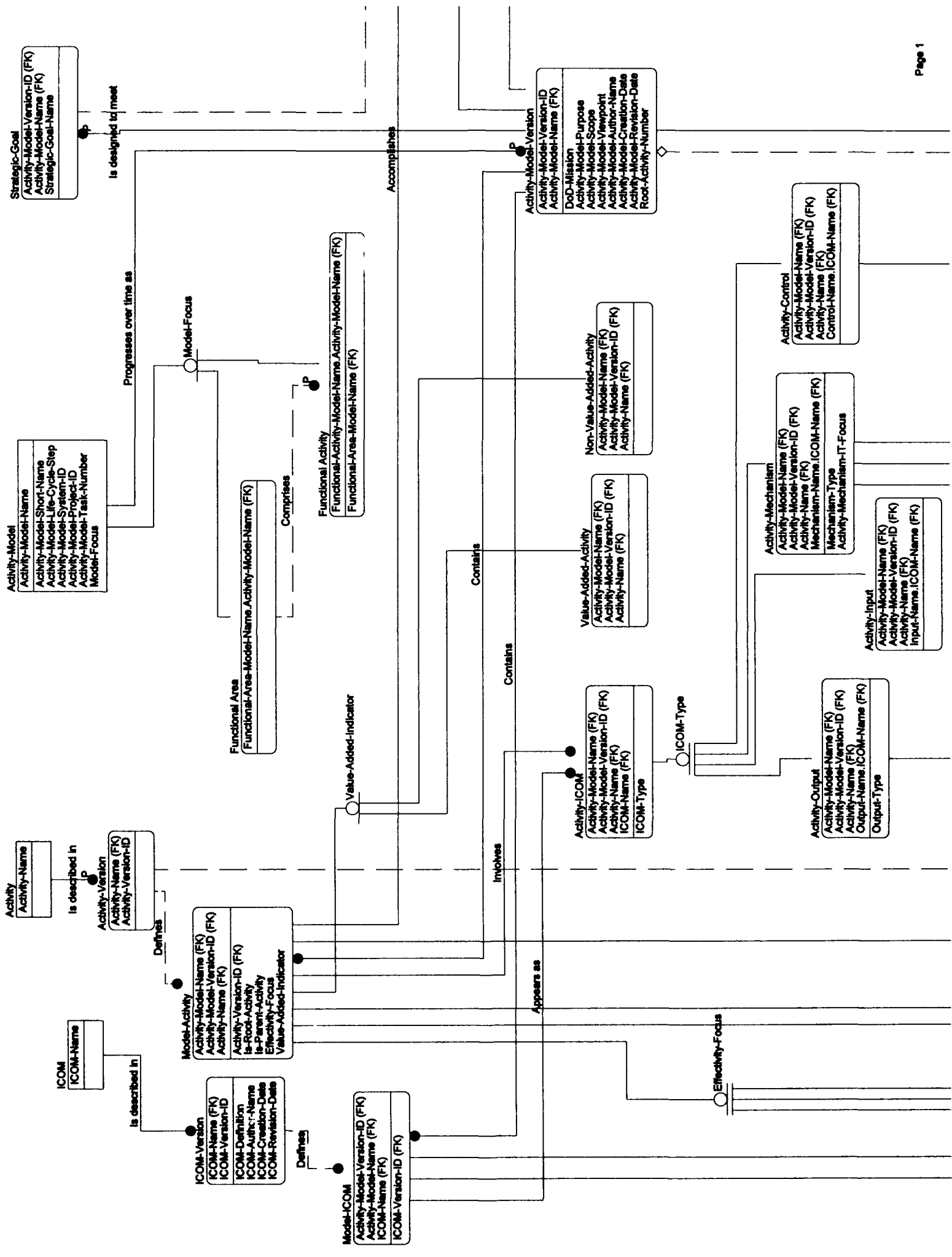
<b>Appr</b>	<b>Approved</b>
<b>Acq</b>	<b>Acquisition</b>
<b>Act</b>	<b>Activity</b>
<b>ID</b>	<b>Identifier</b>
<b>Mgr</b>	<b>Manager</b>
<b>Org</b>	<b>Organization</b>
<b>Prog</b>	<b>Program</b>
<b>Reqmt</b>	<b>Requirement</b>

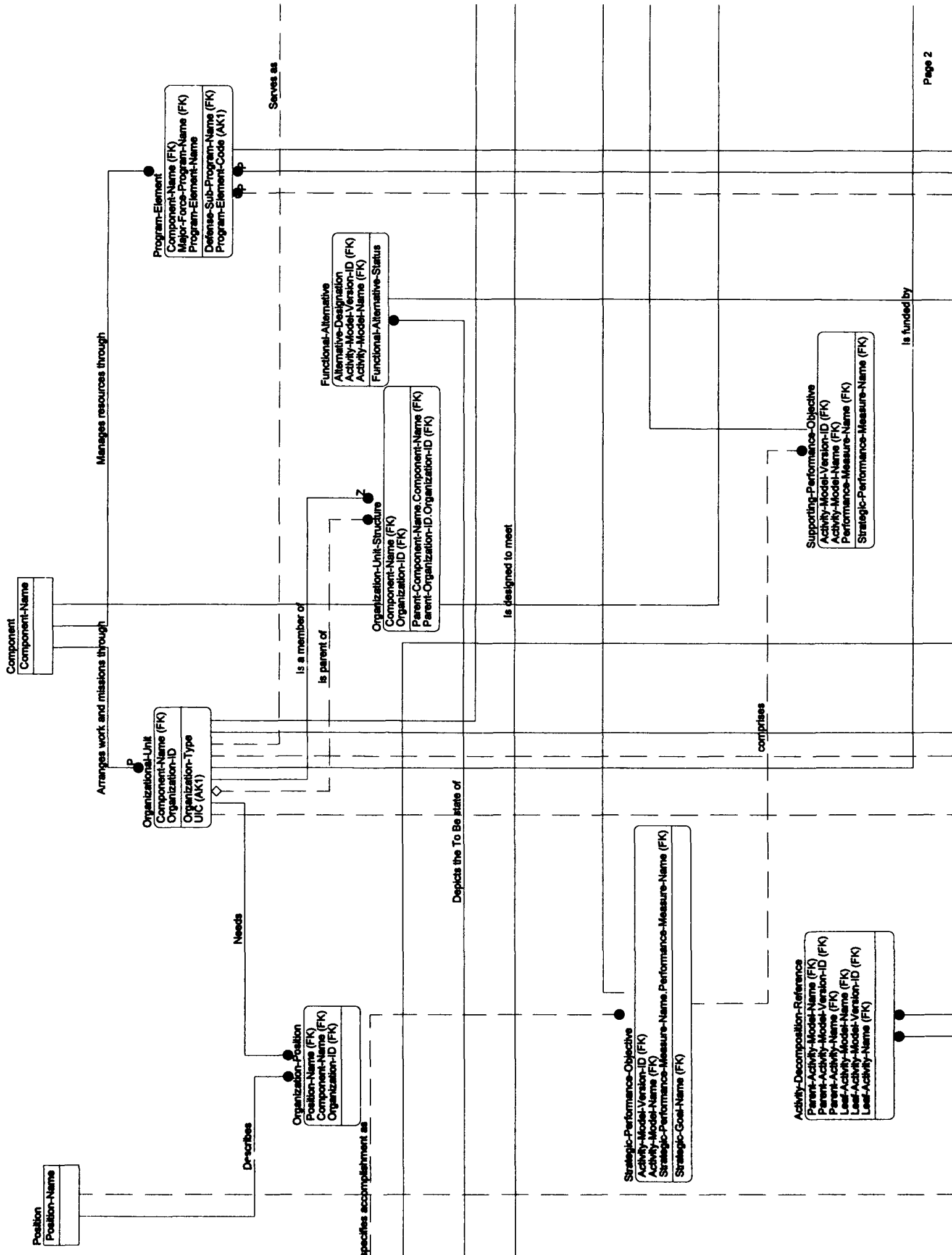


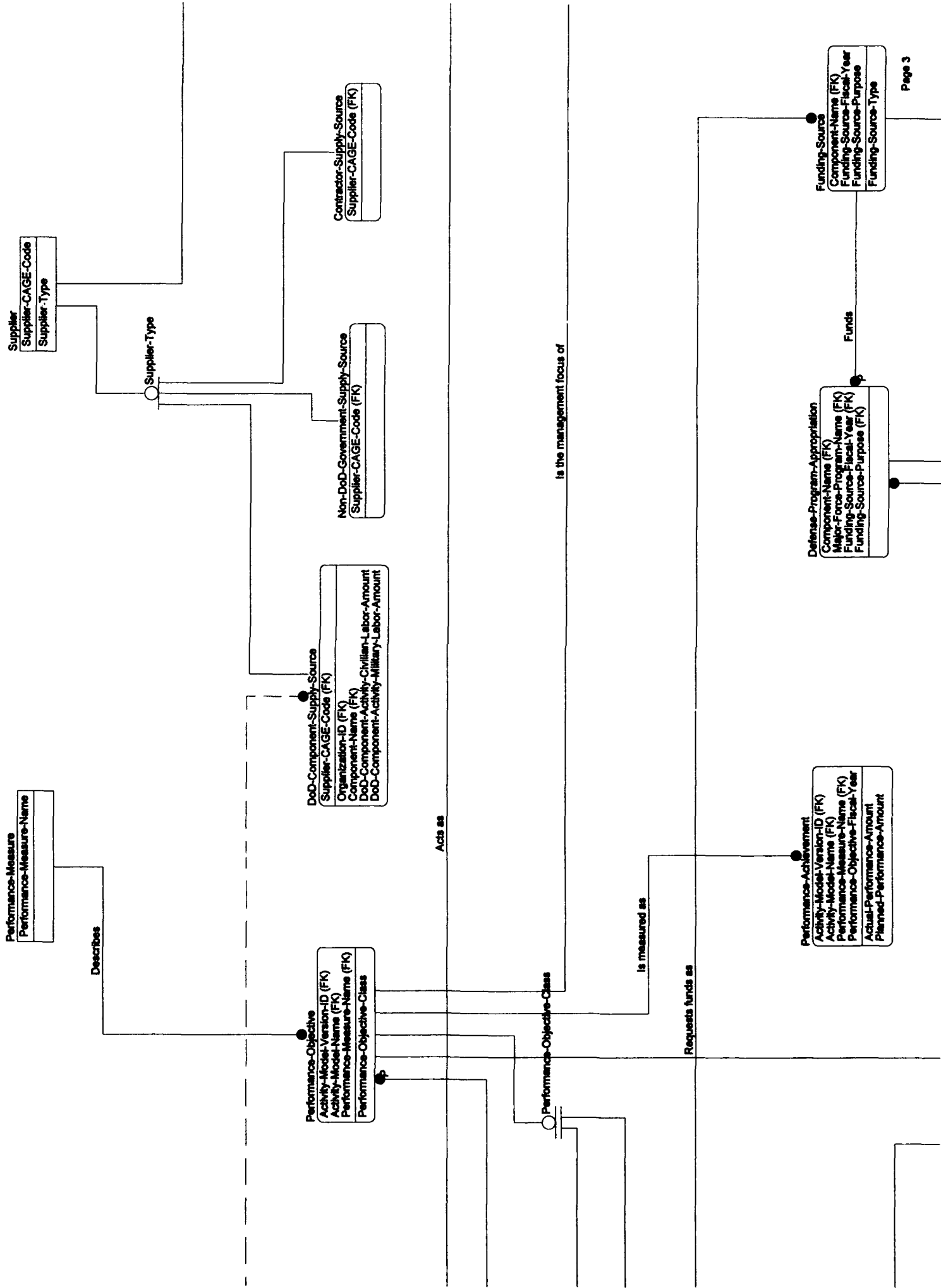
**Appendix B FPI Integrated Data Model**

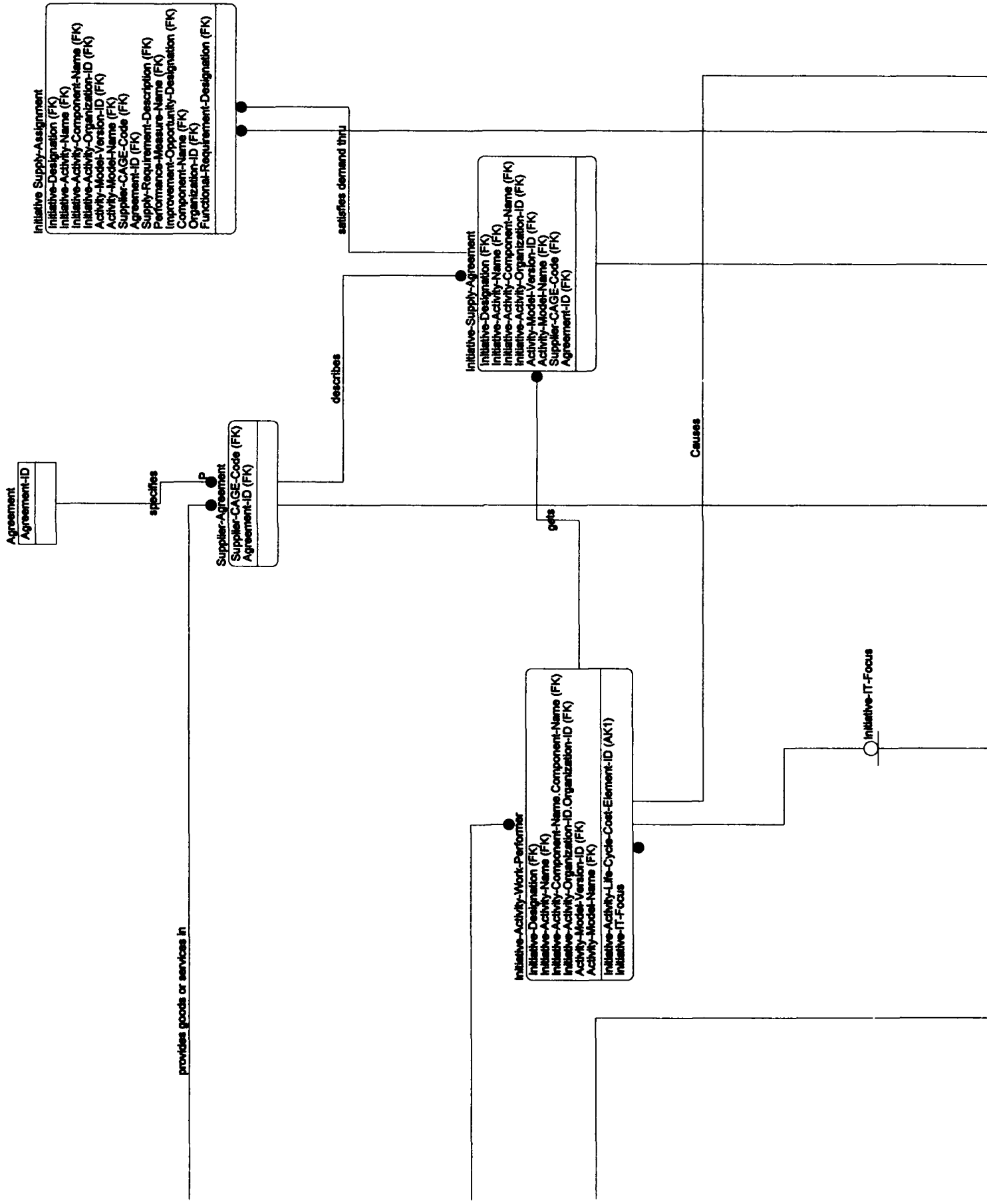
Page Layout			
1	2	3	4
6	7	8	9
11	12	13	14
16	17	18	19

**Figure B-1. Data Model Page Layout**

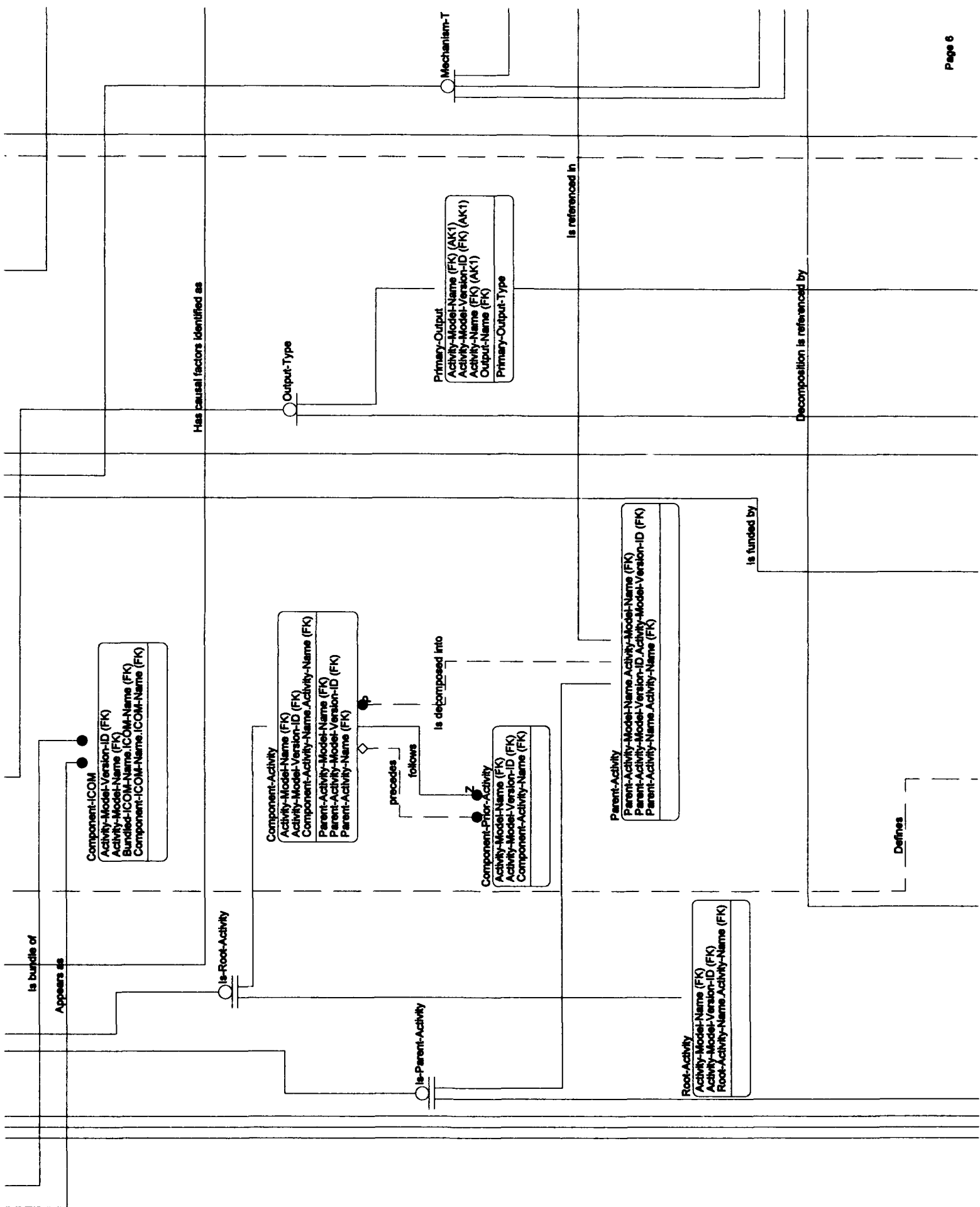


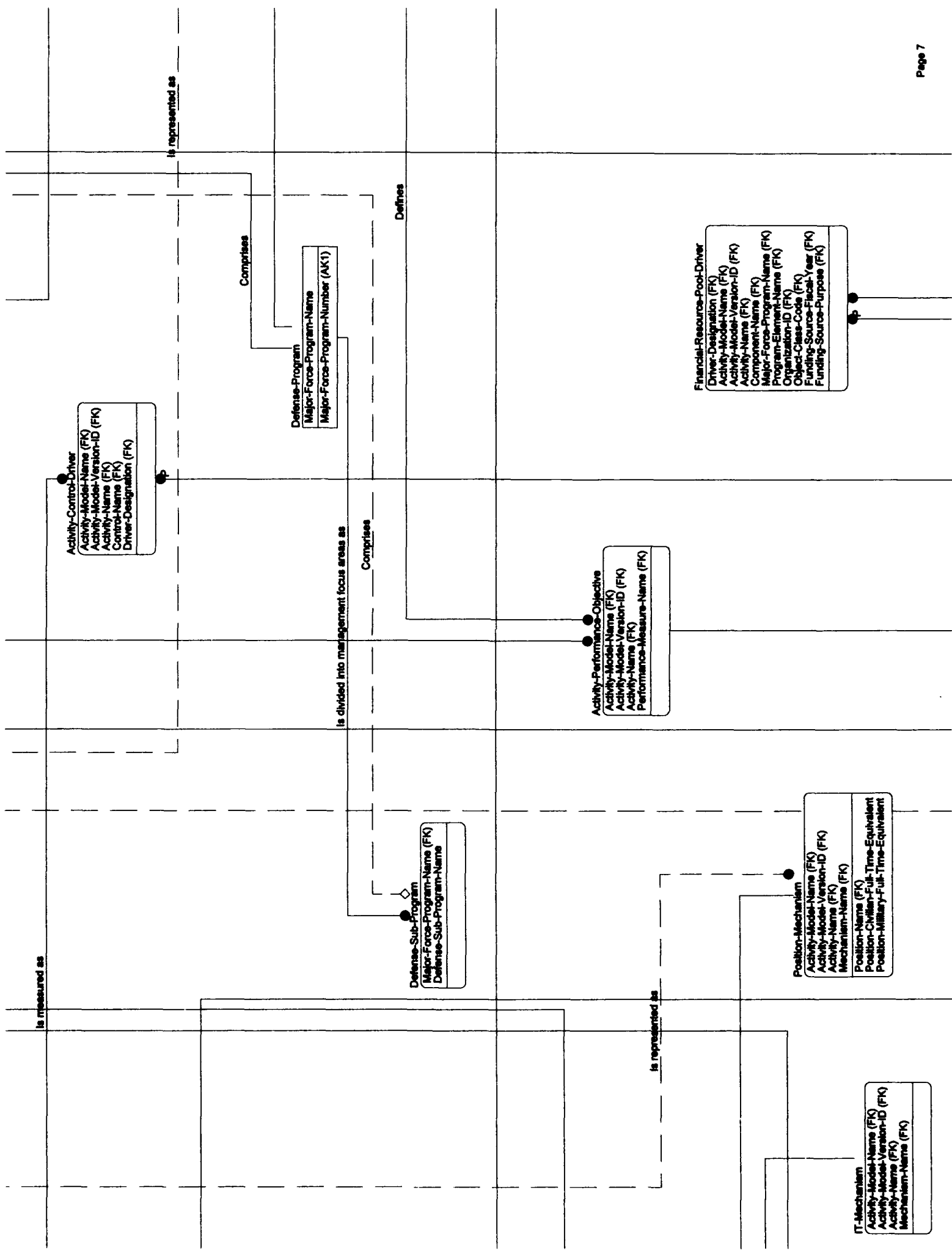












is changed through

is funded by

Funds

results as

Functional-Alternative-Initiative  
Activity-Model-Version-ID (FK)  
Initiative-Designation (FK)  
Alternative-Designation (FK)  
Activity-Model-Name (FK)

Improvement-Opportunity-Impact  
Activity-Model-Name (FK)  
Activity-Model-Version-ID (FK)  
Performance-Measure-Name (FK)  
Improvement-Opportunity-Designation (FK)  
Improvement-Opportunity-Impact-Description  
Improvement-Impact-Focus

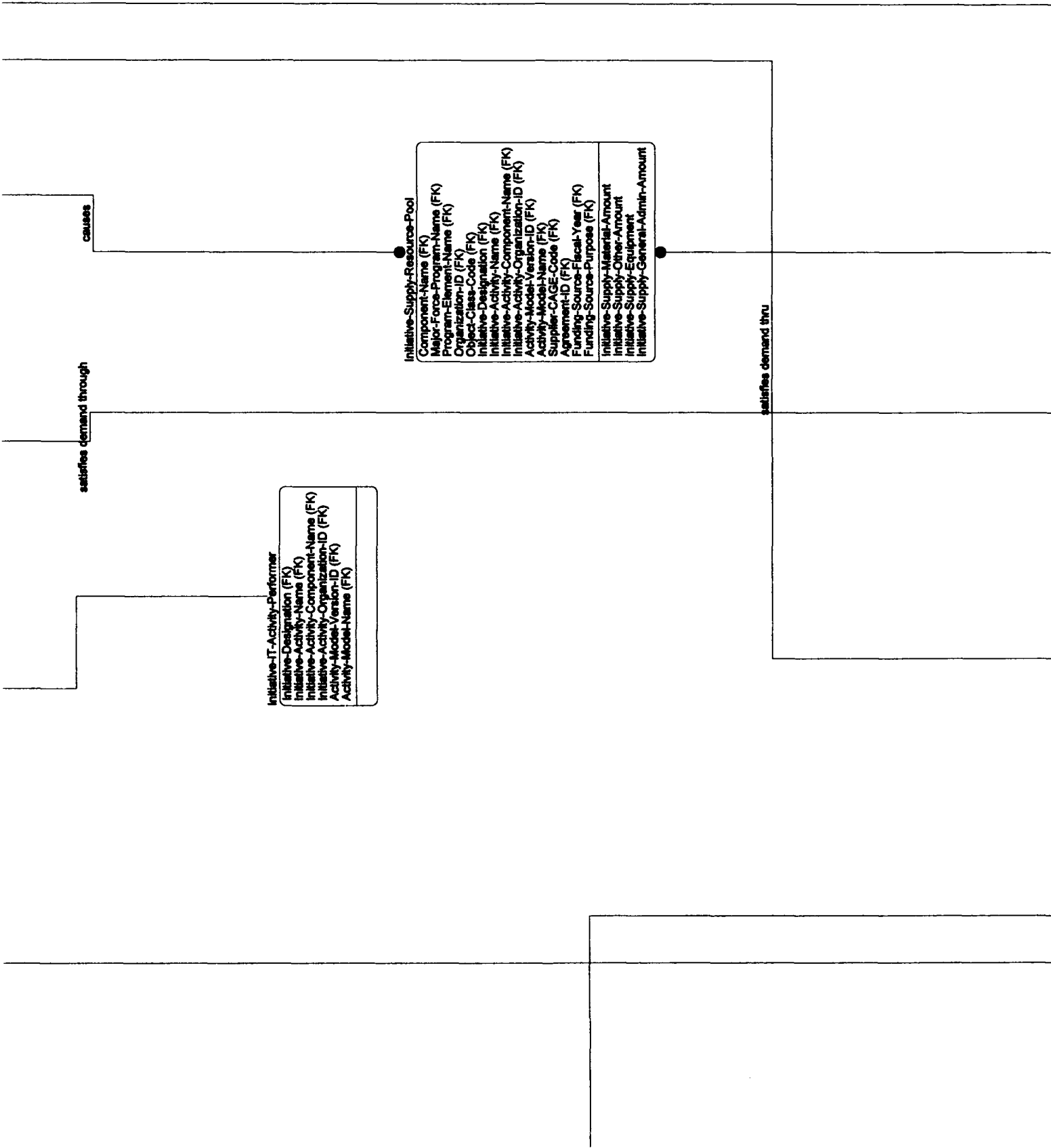
Improvement-Impact-Focus

External-Improvement-Impact  
Activity-Model-Name (FK)  
Activity-Model-Version-ID (FK)  
Performance-Measure-Name (FK)  
Improvement-Opportunity-Designation (FK)  
Improvement-Opportunity-Impact-Description  
Improvement-Opportunity-Impact-Description (FK)

Organization-Mechanism  
Activity-Model-Name (FK)  
Activity-Model-Version-ID (FK)  
Activity-Name (FK)  
Mechanism-Name (FK)  
Component-Name (FK)  
Organization-ID (FK)  
Organization-Civilian-Full-Time-Equivalent  
Organization-Military-Full-Time-Equivalent  
Organization-Mechanism-Focus

Organization-Appropriation  
Component-Name (FK)  
Major-Force-Program-Name (FK)  
Organization-ID (FK)  
Funding-Source-Fiscal-Year (FK)  
Funding-Source-Purpose (FK)

Comprises



Mechanism-Resource-Pool	
Component-Name (FK)	
Major-Force-Program-Name (FK)	
Program-Element-Name (FK)	
Organization-ID (FK)	
Object-Class-Code (FK)	
Activity-Model-Name (FK)	
Activity-Model-Version-ID (FK)	
Activity-Name (FK)	
Mechanism-Name (FK)	
Funding-Source-Fiscal-Year (FK)	
Funding-Source-Purpose (FK)	
Mechanism-Civilian-Labor-Amount	
Mechanism-Facility-Amount	
Mechanism-Material-Amount	
Mechanism-Military-Labor-Amount	
Mechanism-Other-Amount	
Mechanism-Equipment-Amount	
Mechanism-General-Admin-Amount	

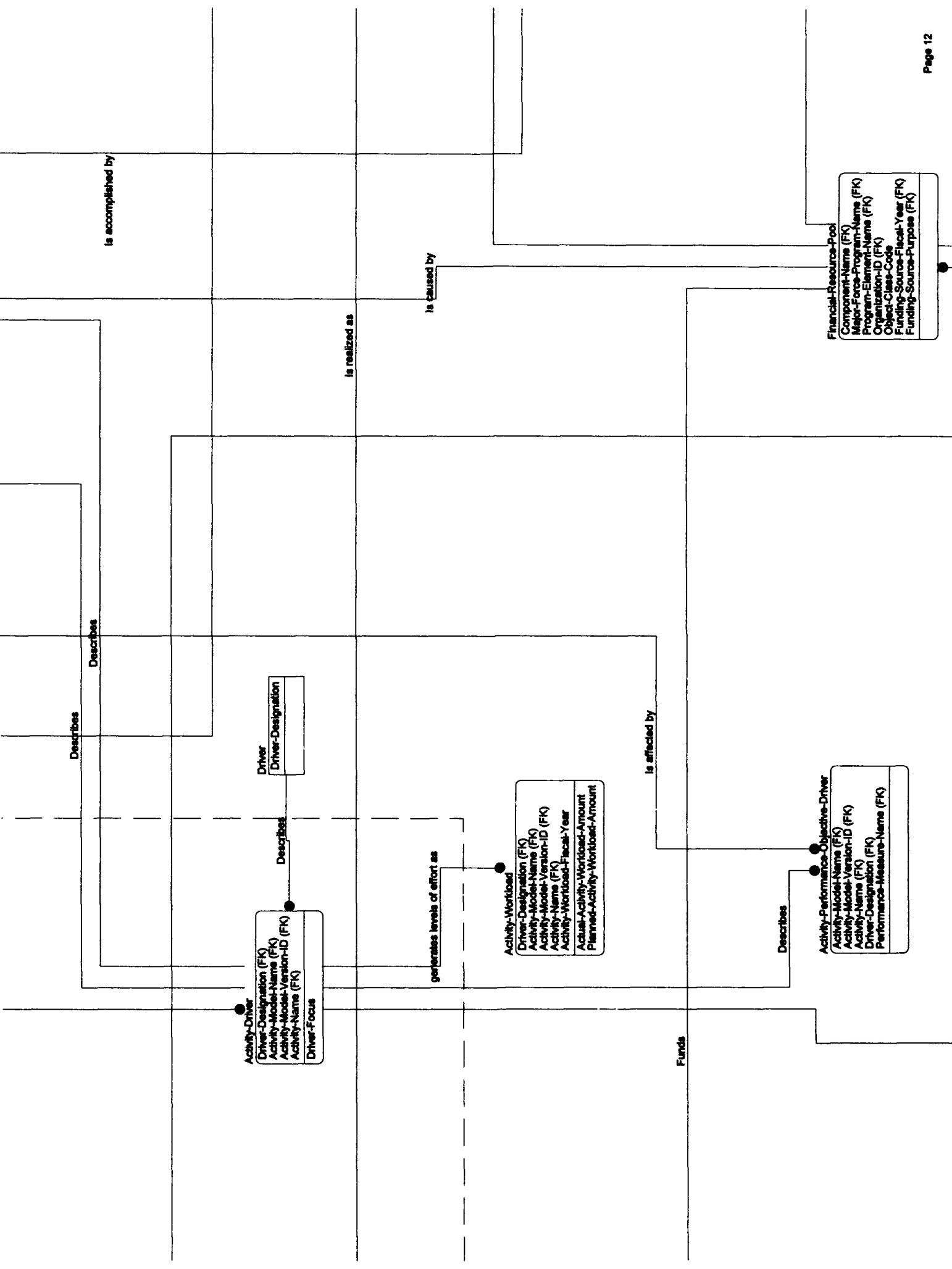
Leaf-Activity	
Leaf-Activity-Model-Name-Activity-Model-Name (FK)	
Leaf-Activity-Model-Version-ID-Activity-Model-Version-ID (FK)	
Leaf-Activity-Name-Activity-Name (FK)	

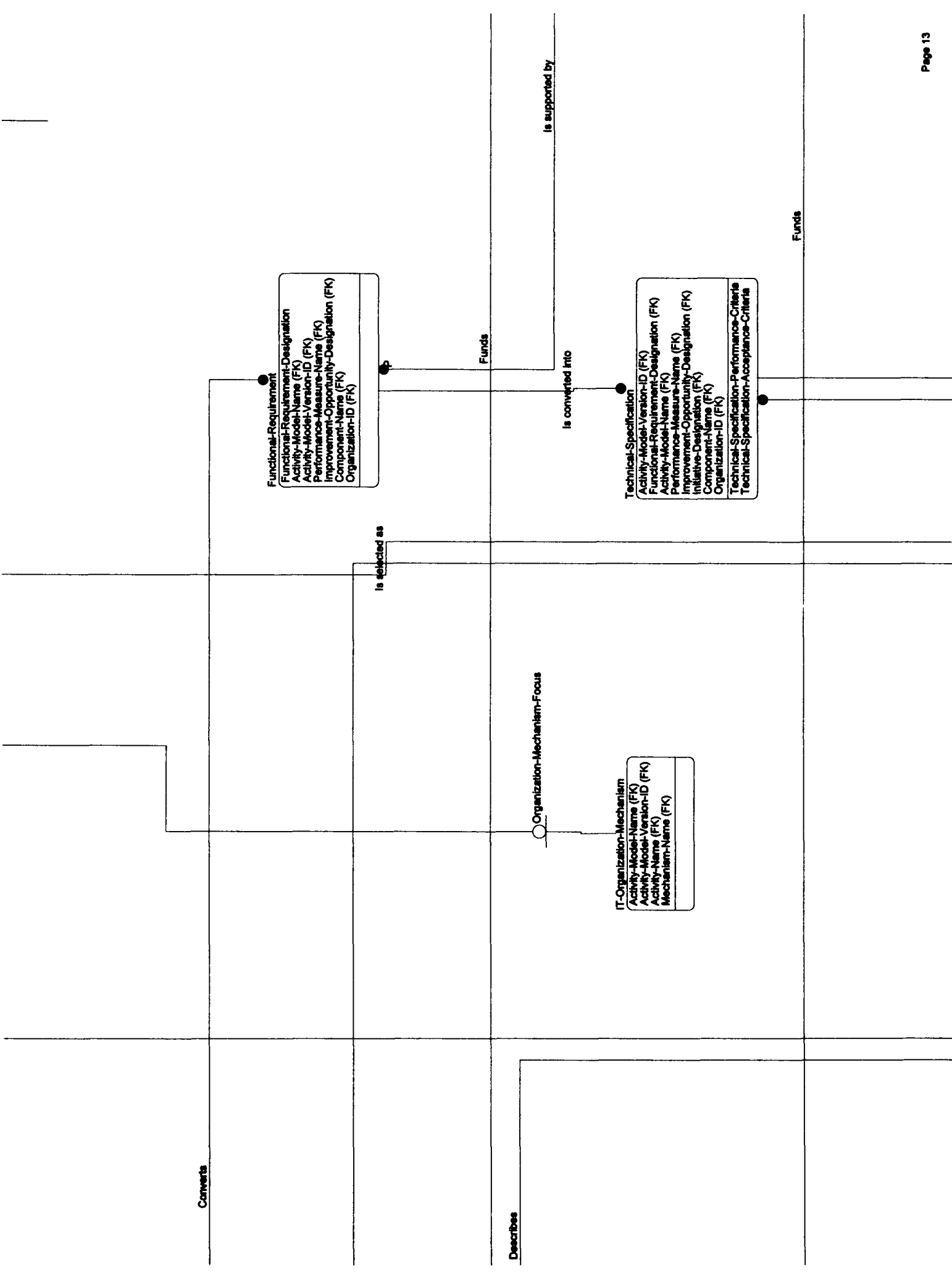
Initiative-Activity	
Initiative-Designation (FK)	
Initiative-Activity-Name-Activity-Name (FK)	
Activity-Model-Version-ID (FK)	
Activity-Model-Name (FK)	
Accountable-Component-Name-Component-Name (FK)	
Accountable-Organization-ID-Organization-ID (FK)	
Activity-Version-ID (FK)	
Initiative-Activity-Cycle-Time	
Initiative-Activity-Performance-Criteria	
Initiative-Activity-Milestone-Indicator	

Introduced Activity	
Activity-Model-Name (FK)	
Activity-Model-Version-ID (FK)	
Activity-Name (FK)	
Initiative-Designation (FK)	
Initiative-Activity-Name (FK)	

triggers the realization of

is accountable for





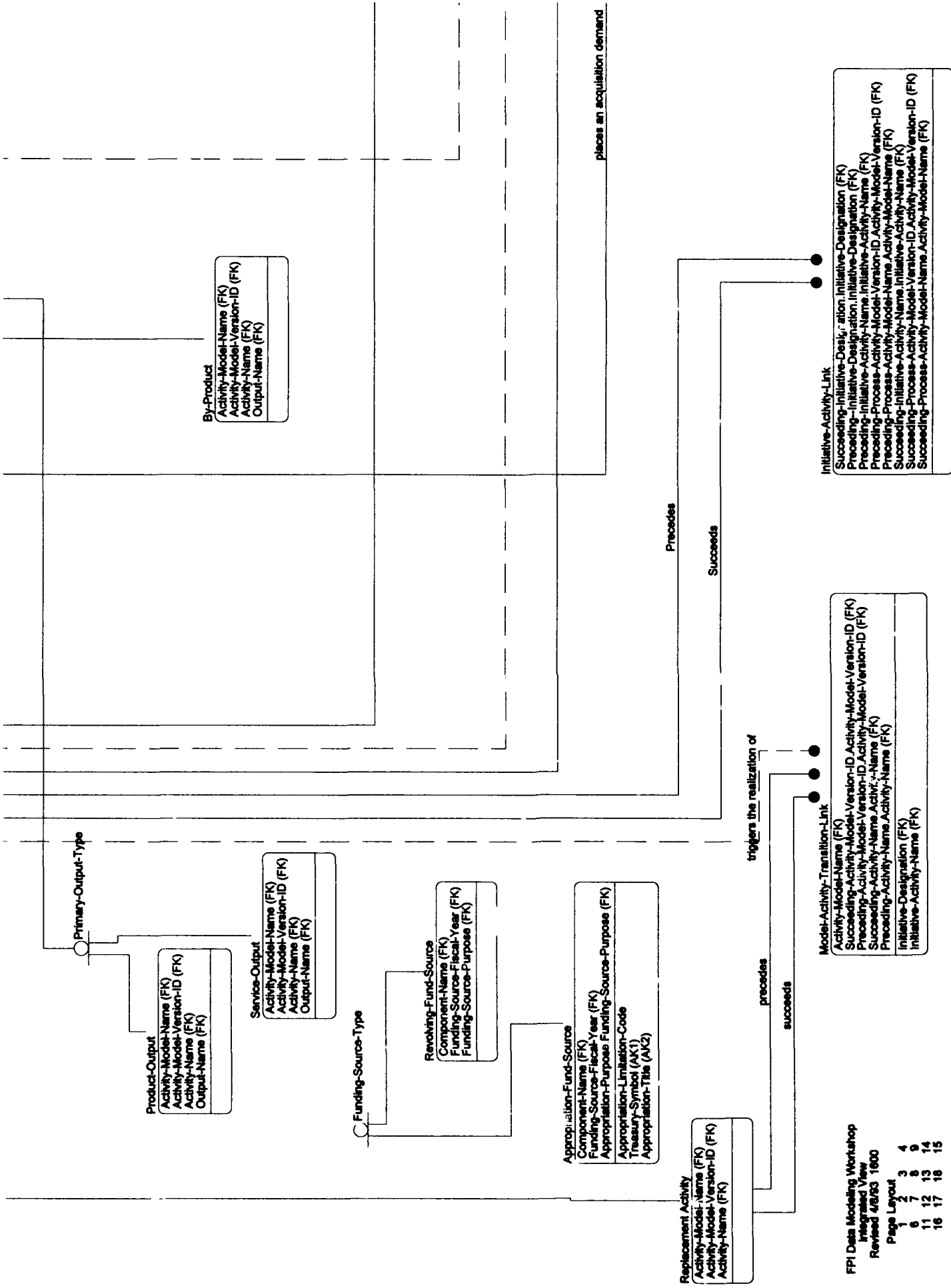
Initiative-Activity-Work-Resource-Pool

Component-Name (FK)  
Major-Force-Program-Name (FK)  
Program-Element-Name (FK)  
Organization-ID (FK)  
Object-Class-Code (FK)  
Initiative-Designation (FK)  
Initiative-Activity-Component-Name (FK)  
Initiative-Activity-Organization-ID (FK)  
Activity-Model-Version-ID (FK)  
Activity-Model-Name (FK)  
Funding-Source-Fiscal-Year (FK)  
Funding-Source-Purpose (FK)  
Initiative-Activity-Civilian-Labor-Amount  
Initiative-Activity-Facility-Amount  
Initiative-Activity-Material-Amount  
Initiative-Activity-Military-Labor-Amount  
Initiative-Activity-Other-Amount  
Initiative-Activity-Equipment-Amount  
Initiative-Supply-Activity-General-Admin-Amount

Improvement-Opportunity

Activity-Model-Name (FK)  
Activity-Model-Version-ID (FK)  
Performance-Measure-Name (FK)  
Improvement-Opportunity-Designation

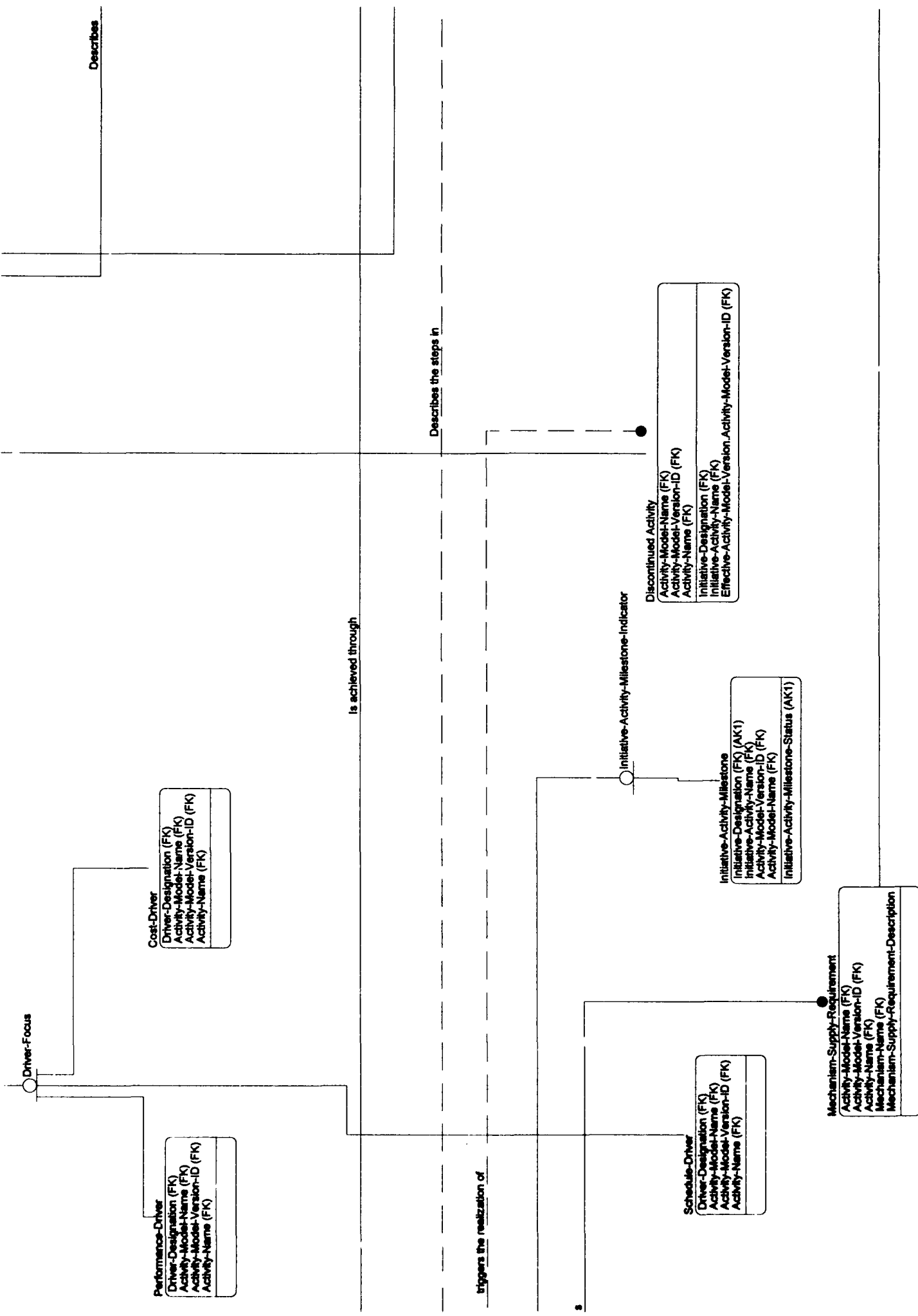




FPI Data Modeling Workshop  
 Integrated View  
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 Page Layout  
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The primary purpose of this modeling effort is to identify and understand the shared data that underlies and provides the foundation for Functional Process Improvement.

The authors of this model are the subject matter and functional experts who make up the FPI workshop team.



Organization-Program-Element
Component-Name (FK)
Major-Force-Program-Name (FK)
Program-Element-Name (FK)
Organization-ID (FK)
Funding-Source-Fiscal-Year (FK)
Funding-Source-Purpose (FK)

funds

Accomplishes

Initiative

Initiative-Designation
Activity-Model-Name (FK)
Activity-Model-Version-ID (FK)
Initiative-Major-System-Designation
Initiative-Start-Date
Initiative-Required-Completion-Date
Initiative-Acceptance-Criteria
Initiative-Type
Initiative-Activity-Model-Name-Activity-Model-Name (FK)
Initiative-Activity-Model-Version-ID-Activity-Model-Version-ID (FK)

is satisfied through

Identifies

Technical-Supply-Requirement

Activity-Model-Version-ID (FK)
Supply-Requirement-Description
Activity-Model-Name (FK)
Performance-Measure-Name (FK)
Improvement-Opportunity-Designation (FK)
Initiative-Designation (FK)
Component-Name (FK)
Organization-ID (FK)
Functional-Requirement-Designation (FK)

Mechanism-Supply-Resource-Pool

Component-Name (FK)
Major-Force-Program-Name (FK)
Program-Element-Name (FK)
Organization-ID (FK)
Object-Class-Code (FK)
Activity-Model-Name (FK)
Activity-Model-Version-ID (FK)
Activity-Name (FK)
Mechanism-Name (FK)
Supplier-CAGE-Code (FK)
Agreement-ID (FK)
Funding-Source-Fiscal-Year (FK)
Funding-Source-Purpose (FK)
Mechanism-Supply-Requirement-Description (FK)

Mechanism-Supply-Material-Amount
Mechanism-Supply-Other-Amount
Mechanism-Supply-Equipment-Amount
Mechanism-Supply-General-Admin-Amount

is funded by

Mechanism-Supply-Agreement

Activity-Model-Name (FK)
Activity-Model-Version-ID (FK)
Activity-Name (FK)
Mechanism-Name (FK)
Supplier-CAGE-Code (FK)
Agreement-ID (FK)
Mechanism-Supply-Requirement-Description (FK)

## **Appendix C FPI Data Model Business Rules**

**Each ACTIVITY is described in one or more ACTIVITY-VERSION.**

**Each ACTIVITY-CONTROL is measured as zero, one or more ACTIVITY-CONTROL-DRIVER.**

**Each ACTIVITY-DRIVER may be a COST-DRIVER based on the discriminator DRIVER-FOCUS.**

**Each ACTIVITY-DRIVER may be a PERFORMANCE-DRIVER based on the discriminator DRIVER-FOCUS.**

**Each ACTIVITY-DRIVER may be a SCHEDULE-DRIVER based on the discriminator DRIVER-FOCUS.**

**Each ACTIVITY-DRIVER describes one or more ACTIVITY-CONTROL-DRIVER.**

**Each ACTIVITY-DRIVER describes zero, one or more ACTIVITY-PERFORMANCE-OBJECTIVE-DRIVER.**

**Each ACTIVITY-DRIVER describes one or more FINANCIAL-RESOURCE-POOL-DRIVER.**

**Each ACTIVITY-DRIVER generates levels of effort as zero, one or more ACTIVITY-WORKLOAD.**

**Each ACTIVITY-ICOM must be either an ACTIVITY-CONTROL, ACTIVITY-INPUT, ACTIVITY-MECHANISM, or an ACTIVITY-OUTPUT based on the discriminator ICOM-TYPE.**

**Each ACTIVITY-MECHANISM may be an IT-MECHANISM based on the discriminator MECHANISM-TYPE.**

**Each ACTIVITY-MECHANISM may be an ORGANIZATION-MECHANISM based on the discriminator MECHANISM-TYPE.**

**Each ACTIVITY-MECHANISM may be an POSITION-MECHANISM based on the discriminator MECHANISM-TYPE.**

**Each ACTIVITY-MECHANISM is funded by zero, one or more MECHANISM-RESOURCE-POOL.**

**Each ACTIVITY-MECHANISM places an acquisition demand as zero, one or more MECHANISM-SUPPLY-REQUIREMENT.**

**Each ACTIVITY-MODEL may be a FUNCTIONAL-ACTIVITY based on the discriminator MODEL-FOCUS.**

**Each ACTIVITY-MODEL may be a FUNCTIONAL-AREA based on the discriminator MODEL-FOCUS.**

**Each ACTIVITY-MODEL progresses over time as one or more ACTIVITY-MODEL-VERSION.**

**Each ACTIVITY-MODEL-VERSION contains zero, one or more MODEL-ACTIVITY.**

**Each ACTIVITY-MODEL-VERSION contains zero, one or more MODEL-ICOM.**

**Each ACTIVITY-MODEL-VERSION depicts the To Be state of zero,one or more FUNCTIONAL-ALTERNATIVE.**

**Each ACTIVITY-MODEL-VERSION describes the steps in zero, one or more INITIATIVE.**

**Each ACTIVITY-MODEL-VERSION is designed to meet one or more PERFORMANCE-OBJECTIVE.**

**Each ACTIVITY-MODEL-VERSION is designed to meet one or more STRATEGIC-GOAL.**

**Each ACTIVITY-MODEL-VERSION is realized as zero, one or more INITIATIVE.**

**Each ACTIVITY-OUTPUT may be a BY-PRODUCT based on the discriminator OUTPUT-TYPE.**

**Each ACTIVITY-OUTPUT may be a PRIMARY-OUTPUT based on the discriminator OUTPUT-TYPE.**

**Each ACTIVITY-PERFORMANCE-OBJECTIVE is affected by zero, one or more ACTIVITY-PERFORMANCE-OBJECTIVE-DRIVER.**

**Each ACTIVITY-VERSION defines zero, one or more INITIATIVE-ACTIVITY.**

**Each ACTIVITY-VERSION defines zero, one or more MODEL-ACTIVITY.**

**Each AGREEMENT specifies one or more SUPPLIER-AGREEMENT.**

**Each COMPONENT arranges work and missions through one or more ORGANIZATIONAL-UNIT.**

**Each COMPONENT manages resources through zero, one or more PROGRAM-ELEMENT.**

**Each COMPONENT requests funds as zero, one or more FUNDING-SOURCE.**

**Each COMPONENT-ACTIVITY immediately precedes zero, one or more COMPONENT-ACTIVITY.**

**Each DEFENSE-PROGRAM comprises one or more PROGRAM-ELEMENT.**

**Each DEFENSE-PROGRAM is divided into management focus areas as zero, one or more DEFENSE-SUB-PROGRAM.**

**Each DEFENSE-PROGRAM is funded by zero, one or more DEFENSE-PROGRAM-APPROPRIATION.**

**Each DEFENSE-PROGRAM-APPROPRIATION funds one or more ORGANIZATION-APPROPRIATION.**

**Each DEFENSE-SUB-PROGRAM comprises one or more PROGRAM-ELEMENT.**

**Each DRIVER describes zero, one or more ACTIVITY-DRIVER.**

**Each FINANCIAL-RESOURCE-POOL funds zero, one or more INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL.**

**Each FINANCIAL-RESOURCE-POOL funds zero, one or more INITIATIVE-SUPPLY-RESOURCE-POOL.**

**Each FINANCIAL-RESOURCE-POOL funds zero, one or more MECHANISM-RESOURCE-POOL.**

**Each FINANCIAL-RESOURCE-POOL is caused by zero, one or more FINANCIAL-RESOURCE-POOL-DRIVER.**

**Each FINANCIAL-RESOURCE-POOL funds zero, one or more MECHANISM-SUPPLY-RESOURCE-POOL.**

**Each FUNCTIONAL AREA comprises one or more FUNCTIONAL ACTIVITY.**

**Each FUNCTIONAL-ALTERNATIVE is changed through zero, one or more FUNCTIONAL-ALTERNATIVE-INITIATIVE.**

**Each FUNCTIONAL-REQUIREMENT is converted into zero, one or more TECHNICAL-SPECIFICATION.**

**Each FUNDING-SOURCE may be an APPROPRIATION-FUND-SOURCE based on the discriminator FUNDING-SOURCE-TYPE.**

**Each FUNDING-SOURCE may be a REVOLVING-FUND-SOURCE based on the discriminator FUNDING-SOURCE-TYPE.**

**Each FUNDING-SOURCE funds one or more DEFENSE-PROGRAM-APPROPRIATION.**

**Each ICOM is described in zero, one or more ICOM-VERSION.**

**Each ICOM-VERSION defines zero, one or more MODEL-ICOM.**

**Each IMPROVEMENT-OPPORTUNITY is supported by one or more FUNCTIONAL-REQUIREMENT.**

**Each IMPROVEMENT-OPPORTUNITY results as one or more IMPROVEMENT-OPPORTUNITY-IMPACT.**

**Each IMPROVEMENT-OPPORTUNITY-IMPACT may be an EXTERNAL-IMPROVEMENT-IMPACT based on the discriminator IMPROVEMENT-IMPACT-FOCUS.**

**Each INITIATIVE accomplishes zero, one or more TECHNICAL-SPECIFICATION.**

**Each INITIATIVE is achieved through one or more INITIATIVE-ACTIVITY.**

**Each INITIATIVE is selected as zero,one or more FUNCTIONAL-ALTERNATIVE-INITIATIVE.**

**Each INITIATIVE-ACTIVITY may be an INITIATIVE-ACTIVITY-MILESTONE based on the discriminator INITIATIVE-ACTIVITY-MILESTONE-INDICATOR.**

**Each INITIATIVE-ACTIVITY is accomplished by zero, one or more INITIATIVE-ACTIVITY-WORK-PERFORMER.**

**Each INITIATIVE-ACTIVITY precedes zero,one or more INITIATIVE-ACTIVITY-LINK.**

**Each INITIATIVE-ACTIVITY succeeds zero, one or more INITIATIVE-ACTIVITY-LINK.**

**Each INITIATIVE-ACTIVITY triggers the realization of zero, one or more DISCONTINUED ACTIVITY.**

**Each INITIATIVE-ACTIVITY triggers the realization of zero, one or more INTRODUCED ACTIVITY.**

**Each INITIATIVE-ACTIVITY triggers the realization of zero, one or more MODEL-ACTIVITY-TRANSITION-LINK.**

**Each INITIATIVE-ACTIVITY-WORK-PERFORMER may be an INITIATIVE-IT-ACTIVITY-PERFORMER based on the discriminator INITIATIVE-IT-FOCUS.**

**Each INITIATIVE-ACTIVITY-WORK-PERFORMER causes one or more INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL.**

**Each INITIATIVE-ACTIVITY-WORK-PERFORMER gets zero, one or more INITIATIVE-SUPPLY-AGREEMENT.**

**Each INITIATIVE-SUPPLY-AGREEMENT causes zero, one or more INITIATIVE-SUPPLY-RESOURCE-POOL.**

**Each INITIATIVE-SUPPLY-AGREEMENT satisfies demand through zero, one or more INITIATIVE-SUPPLY-ASSIGNMENT.**

**Each LEAF-ACTIVITY decomposition is referenced by zero, one or more ACTIVITY-DECOMPOSITION-REFERENCE.**

**Each MECHANISM-SUPPLY-AGREEMENT is funded by zero, one or more MECHANISM-SUPPLY-RESOURCE-POOL.**

**Each MECHANISM-SUPPLY-REQUIREMENT is satisfied through zero, one or more MECHANISM-SUPPLY-AGREEMENT.**



Each MODEL-ACTIVITY must be either a COMPONENT-ACTIVITY or a ROOT-ACTIVITY based on the discriminator IS-ROOT-ACTIVITY.

Each MODEL-ACTIVITY must be either a DISCONTINUED-ACTIVITY, INTRODUCED-ACTIVITY, or a REPLACEMENT-ACTIVITY based on the discriminator EFFECTIVITY-FOCUS.

Each MODEL-ACTIVITY may be a NON-VALUE-ADDED-ACTIVITY based on the discriminator VALUE-ADDED-INDICATOR.

Each MODEL-ACTIVITY must be either a PARENT-ACTIVITY or a LEAF-ACTIVITY.

Each MODEL-ACTIVITY may be a VALUE-ADDED-ACTIVITY based on the discriminator VALUE-ADDED-INDICATOR.

Each MODEL-ACTIVITY accomplishes zero, one or more ACTIVITY-PERFORMANCE-OBJECTIVE.

Each MODEL-ACTIVITY has causal factors identified as zero, one or more ACTIVITY-DRIVER.

Each MODEL-ACTIVITY involves zero, one or more ACTIVITY-ICOM.

Each MODEL-ICOM appears as zero,one or more ACTIVITY-ICOM.

Each MODEL-ICOM appears as zero ,one or more COMPONENT-ICOM.

Each MODEL-ICOM is bundle of zero,one or more COMPONENT-ICOM.

Each ORGANIZATION-APPROPRIATION comprises zero,one or more ORGANIZATION-PROGRAM-ELEMENT.

Each ORGANIZATION-MECHANISM may be an IT-ORGANIZATION-MECHANISM based on the discriminator ORGANISM-MECHANISM-FOCUS.

Each ORGANIZATION-PROGRAM-ELEMENT describes zero, one or more FINANCIAL-RESOURCE-POOL.

Each ORGANIZATIONAL-UNIT acts as zero, one or more INITIATIVE-ACTIVITY-WORK-PERFORMER.

Each ORGANIZATIONAL-UNIT comprises zero, one or more ORGANIZATIONAL-UNIT.

Each ORGANIZATIONAL-UNIT converts zero, one or more FUNCTIONAL-REQUIREMENT.

Each ORGANIZATIONAL-UNIT is accountable for zero,one or more INITIATIVE-ACTIVITY.

Each ORGANIZATIONAL-UNIT is funded by zero, one or more ORGANIZATION-APPROPRIATION.

**Each ORGANIZATIONAL-UNIT is represented as zero, one or more ORGANIZATION-MECHANISM.**

**Each ORGANIZATIONAL-UNIT needs zero,one or more ORGANIZATION-POSITION.**

**Each ORGANIZATIONAL-UNIT serves as zero,one or more DOD-COMPONENT-SUPPLY-SOURCE.**

**Each PARENT-ACTIVITY is decomposed into one or more COMPONENT-ACTIVITY.**

**Each PARENT-ACTIVITY is referenced in zero, one or more ACTIVITY-DECOMPOSITION-REFERENCE.**

**Each PERFORMANCE-MEASURE describes zero, one or more PERFORMANCE-OBJECTIVE.**

**Each PERFORMANCE-OBJECTIVE must be either a STRATEGIC-PERFORMANCE-OBJECTIVE or a SUPPORTING-PERFORMANCE-OBJECTIVE based on the discriminator PERFORMANCE-OBJECTIVE-CLASS.**

**Each PERFORMANCE-OBJECTIVE defines zero, one or more ACTIVITY-PERFORMANCE-OBJECTIVE.**

**Each PERFORMANCE-OBJECTIVE is measured as zero, one or more PERFORMANCE-ACHIEVEMENT.**

**Each PERFORMANCE-OBJECTIVE is the management focus of zero, one or more IMPROVEMENT-OPPORTUNITY.**

**Each POSITION describes zero, one or more ORGANIZATION-POSITION.**

**Each POSITION is represented as zero,one or more POSITION-MECHANISM.**

**Each PRIMARY-OUTPUT may be a PRODUCT-OUTPUT based on the discriminator PRIMARY-OUTPUT-TYPE.**

**Each PRIMARY-OUTPUT may be a SERVICE-OUTPUT based on the discriminator PRIMARY-OUTPUT-TYPE.**

**Each PROGRAM-ELEMENT describes zero,one or more ORGANIZATION-PROGRAM-ELEMENT.**

**Each REPLACEMENT ACTIVITY precedes zero, one or more MODEL-ACTIVITY-TRANSITION-LINK.**

**Each REPLACEMENT ACTIVITY succeeds zero, one or more MODEL-ACTIVITY-TRANSITION-LINK.**

**Each STRATEGIC-GOAL specifies accomplishment as zero, one or more STRATEGIC-PERFORMANCE-OBJECTIVE.**

**Each STRATEGIC-PERFORMANCE-OBJECTIVE comprises zero, one or more SUPPORTING-PERFORMANCE-OBJECTIVE.**

**Each SUPPLIER may be a CONTRACTOR-SUPPLY-SOURCE based on the discriminator SUPPLIER-TYPE.**

**Each SUPPLIER may be a DOD-COMPONENT-SUPPLY-SOURCE based on the discriminator SUPPLIER-TYPE.**

**Each SUPPLIER may be a NON-DOD-GOVERNMENT-SUPPLY-SOURCE based on the discriminator SUPPLIER-TYPE.**

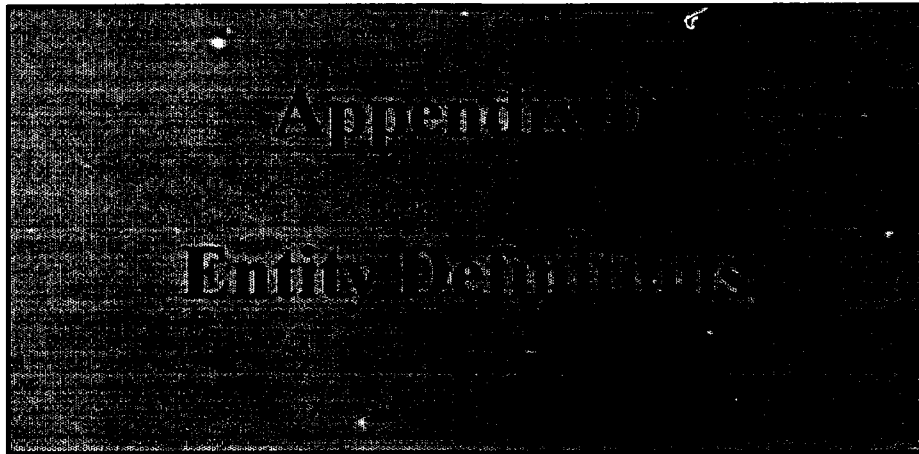
**Each SUPPLIER provides goods or services in zero, one or more SUPPLIER-AGREEMENT.**

**Each SUPPLIER-AGREEMENT describes zero, one or more INITIATIVE-SUPPLY-AGREEMENT.**

**Each SUPPLIER-AGREEMENT satisfies demand through zero, one or more MECHANISM-SUPPLY-AGREEMENT.**

**Each TECHNICAL-SPECIFICATION identifies zero, one or more TECHNICAL-SUPPLY-REQUIREMENT.**

**Each TECHNICAL-SUPPLY-REQUIREMENT satisfies demand through zero, one or more INITIATIVE-SUPPLY-ASSIGNMENT**



***FPI Business Rules Requirements Definition Workshop***

## **Appendix D Entity Definitions**

**ACTIVITY:** A function, process, task, action, etc., that requires some amount of time to produce one or more discernible results. (Source: IDEF-UG Data Model)

**ACTIVITY-CONTROL:** Information that triggers or constrains an ACTIVITY. Controls regulate the transformation of inputs into outputs. (Source: ABC Data Model)

**ACTIVITY-CONTROL-DRIVER:** A factor that has a direct influence on ACTIVITY-CONTROLS.

**ACTIVITY-DECOMPOSITION-REFERENCE:** The identification of a PARENT-ACTIVITY that contains the decomposition of a LEAF-ACTIVITY. The PARENT-ACTIVITY must be from a separate ACTIVITY-MODEL-VERSION than the LEAF-ACTIVITY. (Source: IDEF-UG Data Model)

**ACTIVITY-DRIVER:** A factor that influences a trigger or constraint on an ACTIVITY.

**ACTIVITY-ICOM:** An input to, an output from, a control on, or a mechanism for a MODEL-ACTIVITY.

**ACTIVITY-INPUT:** Information or material used to produce the output of an activity.

**ACTIVITY-MECHANISM:** Usually people, machines, or information systems that provide energy to, or perform, the ACTIVITY. Mechanisms may act as surrogates for consumed resources. (Source: ABC Data Model)

**ACTIVITY-MODEL:** A graphic and textual description of Activities and their ICOMs that is developed using the IDEF0 modeling technique. (Source: IDEF-UG Data Model)

**ACTIVITY-MODEL-VERSION:** An ACTIVITY-MODEL may change over time. The ACTIVITY-MODEL-VERSION identifies the transitions.

**ACTIVITY-OUTPUT:** Information or material produced by or resulting from an ACTIVITY.

**ACTIVITY-PERFORMANCE-OBJECTIVE:** Identifies a unique occurrence of a specific intended target as the result of accomplishing an activity.

**ACTIVITY-PERFORMANCE-OBJECTIVE-DRIVER:** The linkage of a specific activity's PERFORMANCE-OBJECTIVE to a factor that either causes it or directly affects its attainment.

**ACTIVITY-VERSION:** The properties of an ACTIVITY may change over time. The version identifies the properties at a point in time. (Source: IDEF-UG Data Model)

**ACTIVITY-WORKLOAD:** The time-phased, expected overall output of an activity for a specific fiscal year.

**AGREEMENT:** A contract, arrangement or understanding between the DoD (or any of its Services and Agencies) and another party for the provision of a service or product.

**APPROPRIATION-FUND-SOURCE:** Authorization by an Act of Congress to incur obligations for specific purposes and to make disbursements for them from the U.S. Treasury. (Source: Army Financial Management Data Model)

**BY-PRODUCT:** An expected, secondary output that is generated in the process of making, or enabling, the activity's primary output. A category entity of ACTIVITY-OUTPUT.

**COMPONENT:** A constituent of the Department of Defense. Can be any of the Services or Agencies within DoD.

**COMPONENT-ACTIVITY:** A MODEL-ACTIVITY that is part of the decomposition of another MODEL-ACTIVITY. (Source: IDEF-UG Data Model)

**COMPONENT-PRIOR-ACTIVITY:** Depicts the sequential order of decomposed activities.

**COMPONENT-ICOM:** Identifies one MODEL-ICOM (the component) that appears as one that splits from, or merges into, another MODEL-ICOM (the bundled ICOM) within an ACTIVITY-MODEL-VERSION. (Source: IDEF-UG Data Model)

**CONTRACTOR-SUPPLY-SOURCE:** A person or organization who agrees to furnish materials or perform services at a mutually agreed upon price as defined in a contract. (Source: Army FM Data Model)

**COST-DRIVER:** A factor that causes cost to be incurred during or for the performance an activity.

**DEFENSE-PROGRAM:** An aggregation of program elements that reflect a force mission or a support mission of DoD. (Source: J. Romito's "PPBS Information" handout)

**DEFENSE-PROGRAM-APPROPRIATION:** A specific instance of APPROPRIATION for a specific instance of DEFENSE-PROGRAM.

**DEFENSE-SUB-PROGRAM:** A subdivision of a Major Force Program.

**DISCONTINUED-ACTIVITY:** An activity that has been terminated, and no longer appears on succeeding versions of an activity model, e.g., a non-value added activity.

**DOD-COMPONENT-SUPPLY-SOURCE:** Any Service or Agency within the Department of Defense providing a product or service for a particular task.

**DRIVER:** A factor that has a direct influence on activities and processes. Within a business process, drivers are inherited by all other downstream activities.

**EXTERNAL-IMPROVEMENT-IMPACT:** The expected effect or result (of the implementation of an improvement opportunity) on a DoD Service or Agency outside the scope of the modeled activities.

**FINANCIAL-RESOURCE-POOL:** An apportionment of funds that relates how funds are spent in regard to outcomes.

**FINANCIAL-RESOURCE-POOL-DRIVER:** A specific DRIVER that affects a specific FINANCIAL-RESOURCE-POOL.

**FUNCTIONAL-ACTIVITY:** Mutually exclusive, high-level descriptions of what DoD does. Each FUNCTIONAL-AREA has a set of functional activities.e.g., Medical Logistics, Medical Defense Research.

**FUNCTIONAL-ALTERNATIVE:** A clearly different way of doing business from the current way, where present and future workloads are performed using improved processes, including the affect of approved changes.

**FUNCTIONAL-ALTERNATIVE-INITIATIVE:** The relationship of a specific initiative to a functional alternative. The initiative can be included in more than one alternative, and may carry on over a number of iterations of business process improvement.

**FUNCTIONAL-AREA:** Encompasses the scope of the functions for which the OSD Principle Staff Assistant or JCS Chairman has responsibility, authority, and accountability, e.g., Health. (8020.1-M)

**FUNCTIONAL-REQUIREMENT:** The description of a new or improved work feature or capability.

**FUNDING-SOURCE:** Authorization, either directly from Congress in an appropriation or from a customer through a revolving fund, to apply financial resources to the accomplishment of specified purposes.

**ICOM:** A type or class of things (data, things, people, etc.) that are involved with activities in one or more of the following roles:

- **Inputs:** Things which are consumed or transformed by Activities.
- **Controls:** Things that govern, constrain, or trigger Activities.
- **Outputs:** Things that are produced by Activities.
- **Mechanisms:** Things that perform, energize or facilitate Activities.

**ICOM-VERSION:** A collection of information about an ICOM at a point in time. The information about an ICOM may change over time, so it may have more than one ICOM-VERSION. (Source: IDEF-UG Data Model)

**IMPROVEMENT-OPPORTUNITY:** Is an actionable, potential change. (Source: FEA Data Model)

**IMPROVEMENT-OPPORTUNITY-IMPACT:** The expected effect or results of the implementation of an improvement opportunity, e.g., a potential benefit or resource consumption.

**INITIATIVE:** Controls the work needed to accomplish a set of one-time deliverables that implement improvements in a baseline. (Source: FEA Data Model)

**INITIATIVE-ACTIVITY:** A function, process, task, action, etc., of an initiative that requires some amount of time to produce one or more discernible results.

**INITIATIVE-ACTIVITY-LINK:** The specific links between INITIATIVE-ACTIVITY node pairs which, as a set, reflect a network of steps towards accomplishing an initiative.

**INITIATIVE-ACTIVITY-MILESTONE:** A defined level of completion and acceptance for an INITIATIVE-ACTIVITY.

**INITIATIVE-ACTIVITY-WORK-PERFORMER:** The individual or organization responsible for accomplishing an INITIATIVE-ACTIVITY.

**INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL:** An apportionment that funds work on a specific INITIATIVE-ACTIVITY.

**INITIATIVE-IT-ACTIVITY-PERFORMER:** The individual or organization responsible for accomplishing an IT-related INITIATIVE-ACTIVITY.

**INITIATIVE-SUPPLY-AGREEMENT:** Identifies the relationship between internal and external suppliers for an INITIATIVE.

**INITIATIVE-SUPPLY-ASSIGNMENT:** A contract, arrangement or understanding between the DoD (or any of its Services and Agencies) and a specific SUPPLIER for the provision of a service or product to meet the requirements of an INITIATIVE-ACTIVITY.

**INITIATIVE-SUPPLY-RESOURCE-POOL:** An apportionment of funds for a particular INITIATIVE-SUPPLY-AGREEMENT providing goods or services to an INITIATIVE.

**INTRODUCED-ACTIVITY:** An activity that first appears on a new activity model version. Typically, these are the result of process improvement or business re-engineering efforts.

**IT-MECHANISM:** An Information Technology resource (computer-based system or process) that facilitates the accomplishment of an activity.

**IT-ORGANIZATION-MECHANISM:** Represents people involved whose primary purpose is to supply or support Information Technology, that is, the person is there because the computer is there.

**LEAF-ACTIVITY:** A MODEL-ACTIVITY that is not decomposed into other MODEL-ACTIVITIES. Each of these is at the end of a branch in the node tree. (Source: IDEF-UG Data Model)

**MECHANISM-RESOURCE-POOL:** An apportionment of funds for a particular MECHANISM-SUPPLY-AGREEMENT providing goods or services identified through a mechanism.

**MECHANISM-SUPPLY-AGREEMENT:** A contract, arrangement or understanding between the DoD (or any of its Services and Agencies) and a specific SUPPLIER for the provision of a service or product to meet a MECHANISM-SUPPLY-REQUIREMENT.

**MECHANISM-SUPPLY-REQUIREMENT:** A specification that has been converted into a specific amount of a discrete product or service, typically at a level of detail recognized by suppliers.

**MECHANISM-SUPPLY-RESOURCE-POOL:** An apportionment of funds for a particular supply source to an ACTIVITY.



**MECHANISM-SUPPLY-SOURCE:** An organization that provides goods or services required to perform work on an ACTIVITY.

**MODEL-ACTIVITY:** An ACTIVITY-VERSION that is included in an ACTIVITY-MODEL-VERSION. (Source: IDEF-UG Data Model)

**MODEL-ACTIVITY-TRANSITION-LINK:** Indicates the transformation of one version's activity to another version's activity, either through combining activities, splitting an activity, or improving the same activity.

**MODEL-ICOM:** An ICOM-VERSION that is included in an ACTIVITY-MODEL-VERSION. (Source: IDEF-UG Data Model)

**NON-DOD-GOVERNMENT-SUPPLY-SOURCE:** A government department, service, or agency outside of the Department of Defense providing a product or service for a particular task.

**NON-VALUE-ADDED-ACTIVITY:** An activity creates delay, excess, or variation in a process. (Source: FEA Guidebook)

**ORGANIZATION-APPROPRIATION:** A disbursement of funds from a DEFENSE-PROGRAM-APPROPRIATION to a particular ORGANIZATIONAL-UNIT.

**ORGANIZATION-MECHANISM:** A specific, named organization that provides the people and other resources necessary to accomplish the activity.

**ORGANIZATION-POSITION:** A specific POSITION that operates within an ORGANIZATIONAL-UNIT.

**ORGANIZATION-PROGRAM-ELEMENT:** An organization appropriation broken out by program element.

**ORGANIZATIONAL-UNIT:** One of the divisions or directorates that comprise a COMPONENT. An ORGANIZATIONAL-UNIT may be the parent organization (chain of command) for other ORGANIZATIONAL-UNITs.

**ORGANIZATIONAL-UNIT-STRUCTURE:** Depicts the hierarchical composition of divisions or directorates.

**PARENT-ACTIVITY:** A MODEL-ACTIVITY that is decomposed into other MODEL-ACTIVITIES (the components). (Source: IDEF-UG Data Model)

**PERFORMANCE-ACHIEVEMENT:** The time-phased, expected and realized accomplishment of work in a given fiscal year.

**PERFORMANCE-DRIVER:** A factor that has a direct influence on the performance of subsequent activities and processes.

**PERFORMANCE-MEASURE:** A factor used to gauge the speed or responsiveness, quality, or cost of a process, input, or output. (Source: FEA Guidebook)

**PERFORMANCE-OBJECTIVE:** Quantifies an intended or targeted output which is factored by a performance measure. (Source: FEA Data Model)

**POSITION:** A set of skills and knowledge needed to perform an activity or task; a job role (e.g., "Cost Analyst").

**POSITION-MECHANISM:** A specific job role that accomplishes an activity.

**PRIMARY-OUTPUT:** That single, measurable result of an ACTIVITY by which the cost of an ACTIVITY is accumulated.

**PRODUCT:** A type of PRIMARY-OUTPUT that typically produces tangible item.

**PROGRAM-ELEMENT:** Aggregation of organizational entities and resources related to the Defense Program which is a breakdown of the major program/sub-program. (Source: Army Financial Management Data Model)

**REPLACEMENT-ACTIVITY:** An activity that either will be changed or is the result of a change from one version of an activity model to another.

**REVOLVING-FUND-SOURCE:** Authorization by a customer through a revolving fund (primarily the Defense Business Operating Fund) to apply financial resources for specified purposes. This category of FUNDING-SOURCE is applied to the revolving fund corpus, from which disbursements are made.

**ROOT-ACTIVITY:** A MODEL-ACTIVITY that is not part of the decomposition of another MODEL-ACTIVITY. Each ACTIVITY-MODEL has only one ROOT-ACTIVITY, which is at the top of the node tree. (Source: IDEF-UG Data Model)

**SCHEDULE-DRIVER:** A factor that has a direct influence on the schedule of subsequent activities and processes.

**SERVICE:** A type of PRIMARY-OUTPUT where the supplier performs some action for a customer that either provides a level of effort or access to an established infrastructure.

**STRATEGIC-GOAL:** The desired high level outcome that drives overall policy guidance.

**STRATEGIC-PERFORMANCE-OBJECTIVE:** A type of PERFORMANCE-OBJECTIVE that directly relates to a STRATEGIC-GOAL.

**SUPPLIER:** An organization that provides goods or services required by an to perform work for the DoD and any of its Services or Agencies.

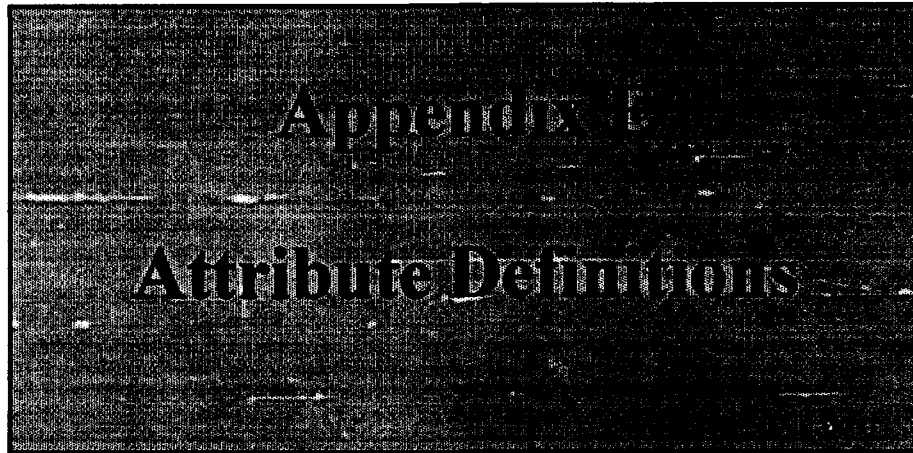
**SUPPLIER-AGREEMENT:** A specific contract, arrangement or understanding between the DoD (or any of its Services and Agencies) and a specific SUPPLIER for the provision of a service or product.

***SUPPORTING-PERFORMANCE-OBJECTIVE:*** A type of PERFORMANCE-OBJECTIVE that measures some action of the business, but is not directly linked to a STRATEGIC-GOAL.

***TECHNICAL-SPECIFICATION:*** The interpretation/conversion of a functional requirement to the specific level of detail needed for acquisition or implementation.

***TECHNICAL-SUPPLY-REQUIREMENT:*** A specification that has been converted into a specific amount of a discrete product or service. Typically, at a level of detail recognized by outside suppliers.

***VALUE-ADDED-ACTIVITY:*** An activity that contributes to the outcome or output of a process, in such a way that the processes' customer would consider the activity is necessary.



## **Appendix E Attribute Definitions**

**ACCOUNTABLE-COMPONENT-NAME:** A declarative word or phrase that indicates the group or organization that has formal or official financial responsibility for the INITIATIVE-ACTIVITY (A non-key attribute of INITIATIVE-ACT)

**ACCOUNTABLE-ORGANIZATION-ID:** A unique value assigned to identify a specific ORGANIZATIONAL-UNIT within a COMPONENT organization that has formal or official financial responsibility for the INITIATIVE-ACTIVITY. (A non-key attribute of INITIATIVE-ACT)

**ACTIVITY-MECHANISM-IT-FOCUS:** A characteristic, whose values are either yes or no, that qualifies a mechanism as of interest to those collecting information technology costs. (A non-key attribute of the entity ACTIVITY-MECHANISM. Used as a discriminator for the category entity IT-MECHANISM)

**ACTIVITY-MODEL-AUTHOR-NAME:** A declarative word or phrase that differentiates an instance of an individual or group, that created a specific instance of ACTIVITY-MODEL, from another individual or group. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-CREATION-DATE:** The specific point in time (allowing fractions of a second) when an instance of ACTIVITY-MODEL was created. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-LIFE-CYCLE-STEP:** The development stage which an instance of ACTIVITY-MODEL has achieved (e.g., working, draft, recommended, published). (A non-key attribute of ACTIVITY-MODEL)

**ACTIVITY-MODEL-NAME:** A declarative word or phrase that differentiates one instance of an ACTIVITY-MODEL from another (to someone familiar with the subject area). (A key native to ACTIVITY-MODEL)

**ACTIVITY-MODEL-PROJECT-ID:** A unique value assigned to identify the project that is associated with an instance of ACTIVITY-MODEL. (A non-key attribute of ACTIVITY-MODEL)

**ACTIVITY-MODEL-PURPOSE:** The objective for which a business process was documented within an ACTIVITY-MODEL-VERSION. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-REVISION-DATE:** The specific point in time (allowing fractions of a second) when changes to an instance of ACTIVITY-MODEL occurred. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-SCOPE:** The breadth and depth of a subject area being represented within an ACTIVITY-MODEL. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-SHORT-NAME:** A word or phrase that is usually an abbreviated or truncated version of the ACTIVITY-MODEL-NAME. (A non-key attribute of ACTIVITY-MODEL)

**ACTIVITY-MODEL-SYSTEM-ID:** A unique value assigned to identify a system associated with an instance of ACTIVITY-MODEL. (A non-key attribute of ACTIVITY-MODEL)

**ACTIVITY-MODEL-TASK-NUMBER:** A unique value assigned to an ACTIVITY-MODEL for modeling project control. (A non-key attribute of ACTIVITY-MODEL)

**ACTIVITY-MODEL-VERSION-ID:** An ACTIVITY-MODEL may change over time. The ACTIVITY-MODEL-VERSION-ID identifies the particular iteration of the model. (A key owned by the entity ACTIVITY-MODEL-VERSION)

**ACTIVITY-MODEL-VIEWPOINT:** The perspective from which a business area is defined within an ACTIVITY-MODEL. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**ACTIVITY-NAME:** A declarative word or phrase that differentiates one instance of an ACTIVITY from another (to someone familiar with the subject area). (A key owned by the entity ACTIVITY)

**ACTIVITY-VERSION-ID:** A unique value assigned to an instance of ACTIVITY that indicates the iteration of the activity. (A key attribute owned by the entity ACTIVITY-VERSION)

**ACTIVITY-WORKLOAD-FISCAL-YEAR:** Per annum accounting period, spanning October 1 through September 30, that applies to a specific instance of ACTIVITY-WORKLOAD. (A key attribute owned by the entity ACTIVITY-WORKLOAD)

**ACTUAL-ACTIVITY-WORKLOAD-AMOUNT:** The demonstrated volume, quantity, cost, etc. of the ACTIVITY-CONTROL that triggers the ACTIVITY-WORKLOAD. (A non-key attribute of the entity ACTIVITY-WORKLOAD)

**ACTUAL-PERFORMANCE-AMOUNT:** The demonstrated volume, quantity, cost, etc. per the PERFORMANCE-OBJECTIVE. (A non-key attribute of the entity PERFORMANCE-ACHIEVEMENT)

**AGREEMENT-ID:** A unique value assigned to identify an instance of AGREEMENT. (A key attribute owned by the entity AGREEMENT)

**ALTERNATIVE-DESIGNATION:** A declarative word or phrase that differentiates one instance of an FUNCTIONAL-ALTERNATIVE from another (to someone familiar with the subject area). (A key attribute owned by the entity FUNCTIONAL-ALTERNATIVE)

**APPROPRIATION-LIMITATION-CODE:** A parametric value used to constrain budget preparation and execution. (A non-key attribute owned by the entity APPROPRIATION)

**APPROPRIATION-PURPOSE:** The Congressionally defined or approved intention for which the funds are to be allocated. (A key attribute owned by the entity APPROPRIATION)

**APPROPRIATION-TITLE:** A declarative word or phrase that differentiates one instance of an APPROPRIATION from another (to someone familiar with the subject area). (An alternate key attribute owned by the entity APPROPRIATION-FUND-SOURCE)

***BUNDLED-ICOM-NAME:*** A declarative word or phrase that differentiates one instance of a summary-level ICOM from another (to someone familiar with the subject area). (A key attribute of the entity COMPONENT-ICOM, using a role name for ICOM-NAME)

***COMPONENT-ACTIVITY-NAME:*** Depicts an ACTIVITY-NAME as a member of an activity tree (node tree) but it cannot be the apex node. (A key attribute of the entity COMPONENT-ACTIVITY, using a role name for ACTIVITY-NAME)

***COMPONENT-ICOM-NAME:*** A declarative word or phrase that differentiates one instance of a branch-level ICOM from another (to someone familiar with the subject area). (A key attribute of the entity COMPONENT-ICOM, using a role name for ICOM-NAME)

***COMPONENT-NAME:*** A declarative word or phrase that differentiates one instance of a COMPONENT from another (to someone familiar with the subject area). (A key attribute for the entity COMPONENT)

***CONTROL-NAME:*** A declarative word or phrase that differentiates one instance of a CONTROL from another (to someone familiar with the subject area). (A key attribute of the entity ACTIVITY-CONTROL, using a role name for ICOM-NAME)

***DEFENSE-SUB-PROGRAM-NAME:*** A declarative word or phrase that differentiates one instance of a DEFENSE-SUB-PROGRAM from another (to someone familiar with the subject area). (A key attribute owned by the entity DEFENSE-SUB-PROGRAM)

***DOD-COMPONENT-ACTIVITY-CIVILIAN-LABOR-AMOUNT:*** The cost of civilian labor provided by a DoD Service or Agency associated with a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity DOD-COMPONENT-SUPPLY-SOURCE.)

***DOD-COMPONENT-ACTIVITY-MILITARY-LABOR-AMOUNT:*** The cost of military labor provided by a DoD Service or Agency associated with a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity DOD-COMPONENT-SUPPLY-SOURCE.)

***DOD-MISSION:*** The overall task or purpose assigned to an activity, agency or organization. (A non-key attribute of ACTIVITY-MODEL-VERSION)

***DRIVER-DESIGNATION:*** A declarative word or phrase that differentiates one instance of a DRIVER from another (to someone familiar with the subject area). (A key owned by the entity DRIVER)

***DRIVER-FOCUS:*** The concentration of an instance of a DRIVER. (A non-key attribute owned by the entity ACTIVITY-DRIVER. Used as a discriminator for the category entities COST-DRIVER, SCHEDULE-DRIVER, and PERFORMANCE-DRIVER)

***EFFECTIVE-ACTIVITY-MODEL-VERSION:*** Indicates the first version of the activity model that will no longer use this activity. (A non-key attribute of the entity DISCONTINUED-ACTIVITY, using a role name for ACTIVITY-MODEL-VERSION)

**EFFECTIVITY-FOCUS:** A characteristic that identifies the presence of an activity in a model version to those involved in managing change. (A non-key attribute of the entity MODEL-ACTIVITY, used as a discriminator for the category entities DISCONTINUED-ACTIVITY, INTRODUCED-ACTIVITY, and REPLACEMENT-ACTIVITY)

**FUNCTIONAL-ACTIVITY-MODEL-NAME:** A declarative word or phrase that differentiates one instance of a model of a Functional Activity from another. (A key-attribute of the entity FUNCTIONAL-ACTIVITY, using a role name for ACTIVITY-MODEL-NAME)

**FUNCTIONAL-ALTERNATIVE-STATUS:** A word or phrase that indicates the current condition of a FUNCTIONAL-ALTERNATIVE (e.g., approved). (A non-key attribute owned by the entity FUNCTIONAL-ALTERNATIVE)

**FUNCTIONAL-AREA-MODEL-NAME:** A declarative word or phrase that differentiates one instance of a model of a Functional Area from another. (A key-attribute of the entity FUNCTIONAL-AREA, using a role name for ACTIVITY-MODEL-NAME)

**FUNCTIONAL-REQUIREMENT-DESIGNATION:** A declarative word or phrase that one differentiates instance of a FUNCTIONAL-REQUIREMENT from another (to someone familiar with the subject area). (A key attribute owned by the entity FUNCTIONAL-REQUIREMENT)

**FUNDING-SOURCE-FISCAL-YEAR:** Per annum accounting period, spanning October 1 through September 30, that applies to a specific instance of FUNDING-SOURCE. (A key attribute owned by the entity FUNDING-SOURCE)

**FUNDING-SOURCE-PURPOSE:** The defined or approved intention for which the funds are to be allocated. (A key attribute owned by the entity FUNDING-SOURCE)

**FUNDING-SOURCE-TYPE:** A taxonomic characteristic that differentiates one kind of FUNDING-SOURCE from another. (A non-key attribute owned by the entity FUNDING-SOURCE. Used as a discriminator for the category entities APPROPRIATION-FUND-SOURCE and REVOLVING-FUND-SOURCE)

**ICOM-AUTHOR-NAME:** A declarative word or phrase that indicates the individual or group that created an instance of ICOM. (A non-key attribute owned by the entity ICOM-VERSION)

**ICOM-CREATION-DATE:** The specific point in time (allowing fractions of a second) when an instance of ICOM was developed or originated. (A non-key attribute owned by the entity ICOM-VERSION)

**ICOM-DEFINITION:** The designated meaning of an instance of an ICOM-VERSION. (A non-key attribute owned by the entity ICOM-VERSION)

**ICOM-NAME:** A declarative word or phrase that differentiates one instance of an ICOM from another (to someone familiar with the subject area). (A key attribute owned by the entity ICOM)

**ICOM-REVISION-DATE:** The specific point in time (allowing fractions of a second) when an instance of ICOM was altered. (A non-key attribute owned by the entity ICOM-VERSION)



**ICOM-TYPE:** Identifies the ICOM as an INPUT, CONTROL, OUTPUT, or MECHANISM. (A non-key attribute of ACTIVITY-ICOM used as a discriminator for the category entities ACTIVITY-MECHANISM and ACTIVITY-CONTROL)

**ICOM-VERSION-ID:** A unique value assigned to an instance of ICOM-VERSION. (A key attribute owned by the entity ICOM-VERSION)

**IMPROVEMENT-IMPACT-FOCUS:** A characteristic that identifies an improvement as outside the area of scope from the perspective of those involved in determining process improvements. (A non-key attribute of the entity IMPROVEMENT-OPPORTUNITY-IMPACT, used as a discriminator for the category entity EXTERNAL-IMPROVEMENT-IMPACT)

**IMPROVEMENT-OPPORTUNITY-DESIGNATION:** A declarative word or phrase that differentiates one instance of an IMPROVEMENT-OPPORTUNITY from another (to someone familiar with the subject area). (A key attribute owned by the entity IMPROVEMENT-OPPORTUNITY)

**IMPROVEMENT-OPPORTUNITY-IMPACT-DESCRIPTION:** A declarative word or phrase that differentiates one instance of an IMPROVEMENT-OPPORTUNITY-IMPACT from another (to someone familiar with the subject area). (A key attribute owned by the entity IMPROVEMENT-OPPORTUNITY-IMPACT)

**INITIATIVE-ACCEPTANCE-CRITERIA:** The standards used to measure the accomplishment of an INITIATIVE. (A non-key attribute owned by the entity INITIATIVE)

**INITIATIVE-ACTIVITY-CIVILIAN-LABOR-AMOUNT:** The cost of civilian labor associated with a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-COMPONENT-NAME:** A declarative word or phrase identifying the DoD Service or Agency responsible for completing the INITIATIVE-ACTIVITY. (A key attribute of the entity INITIATIVE-ACTIVITY-WORK-PERFORMER, using a role name for COMPONENT-NAME)

**INITIATIVE-ACTIVITY-CYCLE-TIME:** The specific amount of time (allowing fractions of a second) over which an instance of INITIATIVE-ACTIVITY is performed. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY)

**INITIATIVE-ACTIVITY-EQUIPMENT-AMOUNT:** The cost of the equipment utilized to complete a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-FACILITY-AMOUNT:** The cost of the facilities utilized to complete a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-LIFE-CYCLE-COST-ELEMENT-ID:** A unique value assigned to an instance of INITIATIVE-ACTIVITY-WORK-PERFORMER that indicates the associated life cycle cost element. (An alternate key owned by the entity INITIATIVE-ACTIVITY-WORK-PERFORMER)

**INITIATIVE-ACTIVITY-MATERIAL-AMOUNT:** The cost of the materials utilized to complete a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-MILESTONE-INDICATOR:** A yes/no value that shows whether an INITIATIVE-ACTIVITY is a landmark in the overall completion of that INITIATIVE. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY, used as a discriminator for the category entity INITIATIVE-ACTIVITY-MILESTONE)

**INITIATIVE-ACTIVITY-MILESTONE-STATUS:** A word or phrase that indicates the current condition of an INITIATIVE-ACTIVITY that serves as a landmark in the overall completion of an INITIATIVE. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-MILESTONE)

**INITIATIVE-ACTIVITY-MILITARY-LABOR-AMOUNT:** The cost of military labor associated with a single instance of an INITIATIVE-ACTIVITY, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-MODEL-NAME:** A declarative word or phrase that identifies the ACTIVITY-MODEL that depicts the steps required to complete an initiative. (A non-key attribute of the entity INITIATIVE, using a role name for ACTIVITY-MODEL-NAME)

**INITIATIVE-ACTIVITY-VERSION-ID:** Identifies the particular iteration of the model that depicts the steps required to complete an initiative. (A non-key attribute of the entity INITIATIVE, using a role name for ACTIVITY-VERSION-ID)

**INITIATIVE-ACTIVITY-NAME:** A declarative word or phrase that differentiates one instance of an INITIATIVE-ACTIVITY from another (to someone familiar with the subject area). (A key attribute of the entity INITIATIVE-ACTIVITY, using a role name for ACTIVITY-NAME)

**INITIATIVE-ACTIVITY-ORGANIZATION-ID:** A unique value assigned to identify the DoD Service or Agency responsible for completing the INITIATIVE-ACTIVITY. (A key attribute of the entity INITIATIVE-ACTIVITY-WORK-PERFORMER, using a role name for ORGANIZATION-ID)

**INITIATIVE-ACTIVITY-OTHER-AMOUNT:** The cost of performing a single instance of an INITIATIVE-ACTIVITY, other than labor, facilities, materials and information technology, encumbered by the INITIATIVE-ACTIVITY-WORK-PERFORMER. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY-WORK-RESOURCE-POOL)

**INITIATIVE-ACTIVITY-PERFORMANCE-CRITERIA:** The standards used to evaluate the performance of an INITIATIVE. (A non-key attribute owned by the entity INITIATIVE-ACTIVITY)

**INITIATIVE-DESIGNATION:** A declarative word or phrase that one differentiates instance of an INITIATIVE from another (to someone familiar with the subject area). (A key attribute owned by the entity INITIATIVE)

**INITIATIVE-IT-FOCUS:** A characteristic that identifies an INITIATIVE-ACTIVITY-WORK-PERFORMER as being Information Technology-related. (A non-key attribute of the entity INITIATIVE-ACTIVITY-WORK-PERFORMER)

**INITIATIVE-MAJOR-SYSTEM-DESIGNATION:** A declarative word or phrase that indicates the major automated system associated with an instance of INITIATIVE. (A non-key attribute of the entity INITIATIVE)

**INITIATIVE-REQUIRED-COMPLETION-DATE:** The specific point in time (allowing fractions of a second) when an instance of INITIATIVE is to be concluded. (A non-key attribute owned by the entity INITIATIVE)

**INITIATIVE-START-DATE:** The specific point in time (allowing fractions of a second) when implementation of an instance of INITIATIVE is to start begin. (A non-key attribute owned by the entity INITIATIVE)

**INITIATIVE-SUPPLY-EQUIPMENT-AMOUNT:** The cost of the equipment utilized to complete a single instance of an INITIATIVE-ACTIVITY, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity INITIATIVE-SUPPLY-RESOURCE-POOL)

**INITIATIVE-SUPPLY-GENERAL-ADMIN-AMOUNT:** The cost of the General & Administrative support utilized to complete a single instance of an INITIATIVE-ACTIVITY, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity INITIATIVE-SUPPLY-RESOURCE-POOL)

**INITIATIVE-SUPPLY-MATERIAL-AMOUNT:** The cost of the materials utilized to complete a single instance of an INITIATIVE-ACTIVITY, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity INITIATIVE-SUPPLY-RESOURCE-POOL)

**INITIATIVE-SUPPLY-OTHER-AMOUNT:** The cost of performing a single instance of an INITIATIVE-ACTIVITY, other than labor, facilities, materials and information technology, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity INITIATIVE-SUPPLY-RESOURCE-POOL)

**INITIATIVE-TYPE:** A taxonomic characteristic that differentiates one group of INITIATIVE from another group of INITIATIVE. (This attribute is a place-holder where categories to the entity INITIATIVE may be added in the future.) (A non-key attribute owned by the entity INITIATIVE)

**INPUT-NAME:** A declarative word or phrase that differentiates one instance of an INPUT from another (to someone familiar with the subject area). (A key attribute of the entity ACTIVITY-INPUT, using a role name for ICOM-NAME)

**IS-PARENT-ACTIVITY:** A yes/no value that shows whether an instance of MODEL-ACTIVITY is the next higher level within the decomposition. (A non-key attribute of MODEL-ACTIVITY used as a discriminator for the category entities LEAF-ACTIVITY and PARENT-ACTIVITY.)

**IS-ROOT-ACTIVITY:** A yes/no value that shows whether an instance of MODEL-ACTIVITY is the highest level within the decomposition. (A non-key attribute of MODEL-ACTIVITY used as a discriminator for the category entities ROOT-ACTIVITY and COMPONENT-ACTIVITY.)

**LEAF-ACTIVITY-MODEL-NAME:** A declarative word or phrase that differentiates one instance of a LEAF-ACTIVITY-MODEL from another (to someone familiar with the subject area). (A key attribute of the entity LEAF-ACTIVITY-MODEL, using a role name for ACTIVITY-MODEL-NAME)

**LEAF-ACTIVITY-MODEL-VERSION-ID:** Identifies the particular iteration of a LEAF-ACTIVITY-MODEL. (A key attribute owned by the entity LEAF-ACTIVITY-MODEL, using a role name for ACTIVITY-MODEL-VERSION-ID)

**LEAF-ACTIVITY-NAME:** A declarative word or phrase that differentiates one instance of an activity on a LEAF-ACTIVITY-MODEL from another (to someone familiar with the subject area). (A key attribute of the entity LEAF-ACTIVITY-MODEL, using a role name for ACTIVITY-NAME)

**MAJOR-FORCE-PROGRAM-NAME:** A declarative word or phrase that differentiates one instance of an MAJOR-FORCE-PROGRAM from another (to someone familiar with the subject area). (A key attribute owned by the entity DEFENSE-PROGRAM)

**MAJOR-FORCE-PROGRAM-NUMBER:** A unique value assigned to an instance of MAJOR-FORCE-PROGRAM. (An alternate key owned by the entity DEFENSE-PROGRAM)

**MECHANISM-CIVILIAN-LABOR-AMOUNT:** The recurring cost of civilian labor for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-EQUIPMENT-AMOUNT:** The recurring cost of the equipment required for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-FACILITY-AMOUNT:** The recurring cost of the facilities utilized for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-GENERAL-ADMIN-AMOUNT:** The recurring cost of General and Administrative support required for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-MATERIAL-AMOUNT:** The recurring cost of materials for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-MILITARY-LABOR-AMOUNT:** The recurring cost of military labor for a single instance of an activity. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-NAME:** A declarative word or phrase that differentiates one instance of a MECHANISM from another (to someone familiar with the subject area). (A key attribute of the entity ACTIVITY-MECHANISM, using a role name for ICOM-NAME)

**MECHANISM-OTHER-AMOUNT:** The recurring cost of performing an activity, other than labor, facilities, materials and information technology. (A non-key attribute owned by the entity MECHANISM-RESOURCE-POOL)

**MECHANISM-SUPPLY-EQUIPMENT-AMOUNT:** The cost of the equipment utilized perform an ACTIVITY, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity MECHANISM--SUPPLY-RESOURCE-POOL)

**MECHANISM-SUPPLY-GENERAL-ADMIN-AMOUNT:** The cost of the General & Administrative support utilized to complete an activity, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity MECHANISM-SUPPLY-RESOURCE-POOL)

**MECHANISM-SUPPLY-MATERIAL-AMOUNT:** The cost of the materials utilized to complete an activity, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity MECHANISM-SUPPLY-RESOURCE-POOL)

**MECHANISM-SUPPLY-OTHER-AMOUNT:** The cost of performing activity, other than labor, facilities, materials and information technology, obligated to a SUPPLY-SOURCE. (A non-key attribute owned by the entity MECHANISM-SUPPLY-RESOURCE-POOL)

**MECHANISM-SUPPLY-REQUIREMENT-DESCRIPTION:** A definition of a material or service provided by a MECHANISM-SUPPLY-SOURCE to satisfy the need of a specific MECHANISM-SUPPLY-REQUIREMENT. (A key attribute owned by the entity MECHANISM-SUPPLY-REQUIREMENT)

**MECHANISM-TYPE:** Identifies the mechanism as belonging to one of two categories: an organization, or a job role. (A non-key attribute of ACTIVITY-MECHANISM used as a discriminator for the category entities ORGANIZATION-MECHANISM and POSITION-MECHANISM)

**MODEL-FOCUS:** The target area of examination for which the ACTIVITY-MODEL is being created. (A non-key attribute of the entity ACTIVITY-MODEL)

**OBJECT-CLASS-CODE:** A unique value assigned to an instance of FINANCIAL-RESOURCE-POOL that identifies transactions of the Federal Government by the nature of goods or services purchased. (A key attribute owned by the entity FINANCIAL-RESOURCE-POOL)

**ORGANIZATION-CIVILIAN-FULL-TIME-EQUIVALENT:** The demonstrated number of civilian people, adjusted for seasonality, cycles, etc., supplied by an organization to accomplish the activity. (A non-key attribute of ORGANIZATION-MECHANISM)

**ORGANIZATION-ID:** A unique identifier assigned to identify an ORGANIZATIONAL-UNIT. (A key attribute owned by the entity ORGANIZATIONAL-UNIT)

**ORGANIZATION-MECHANISM-FOCUS:** Identifies whether an ORGANIZATION-MECHANISM directly contributes to or supports Information Technology actions or tasks. (A non-key attribute of the entity ORGANIZATION-MECHANISM, used as a discriminator for the category entity IT-ORGANIZATION-MECHANISM)

**ORGANIZATION-MILITARY-FULL-TIME-EQUIVALENT:** The demonstrated number of military people, adjusted for seasonality, cycles, etc., supplied by an organization to accomplish the activity. (A non-key attribute of ORGANIZATION-MECHANISM)

**ORGANIZATION-TYPE:** A taxonomic characteristic that differentiates one group of ORGANIZATIONAL-UNIT from another group of ORGANIZATIONAL-UNIT. (This attribute is a place-holder where categories to the entity ORGANIZATIONAL-TYPE may be added in the future.) (A non-key attribute owned by the entity ORGANIZATIONAL-UNIT)

**OUTPUT-NAME:** A declarative word or phrase that differentiates one instance of a OUTPUT from another (to someone familiar with the subject area). (A key attribute of the entity ACTIVITY-OUTPUT, using a role name of the attribute ICOM-NAME)

**OUTPUT-TYPE:** A taxonomic characteristic that differentiates one group of ACTIVITY-OUTPUT from another group. (A non-key attribute of the entity ACTIVITY-OUTPUT. Used as a discriminator for the category entities PRIMARY-OUTPUT and BY-PRODUCT.)

**PARENT-ACTIVITY-MODEL-NAME:** A declarative word or phrase that differentiates one instance of a PARENT-ACTIVITY-MODEL from another (to someone familiar with the subject area). (A key attribute of the entity PARENT-ACTIVITY-MODEL, using a role name for ACTIVITY-MODEL-NAME)

**PARENT-ACTIVITY-MODEL-VERSION-ID:** Identifies the particular iteration of a PARENT-ACTIVITY-MODEL. (A key attribute owned by the entity PARENT-ACTIVITY-MODEL, using a role name for ACTIVITY-MODEL-VERSION-ID)

**PERFORMANCE-MEASURE-NAME:** A declarative word or phrase that indicates the criteria for gauging the improvement in execution of an activity for an instance of a PERFORMANCE-OBJECTIVE. (A key attribute owned by the entity PERFORMANCE-MEASURE)

**PERFORMANCE-OBJECTIVE-CLASS:** Indicates whether a PERFORMANCE-OBJECTIVE is of a strategic or supporting nature. (A non-key attribute of the entity PERFORMANCE-OBJECTIVE, used as a discriminator for the category entities STRATEGIC-PERFORMANCE-OBJECTIVE and SUPPORTING-PERFORMANCE-OBJECTIVE)

**PERFORMANCE-OBJECTIVE-FISCAL-YEAR:** Per annum accounting period, spanning October 1 through September 30, that applies to a specific instance of PERFORMANCE-OBJECTIVE. (A key attribute owned by the entity PERFORMANCE-ACHIEVEMENT)

**PLANNED-ACTIVITY-WORKLOAD-AMOUNT:** The projected or estimated volume, quantity, cost, etc. of the ACTIVITY-CONTROL that triggers the ACTIVITY-WORKLOAD. (A non-key attribute of the entity ACTIVITY-WORKLOAD)

**PLANNED-PERFORMANCE-AMOUNT:** The projected or estimated volume, quantity, cost, etc. per the PERFORMANCE-OBJECTIVE. (A non-key attribute of the entity PERFORMANCE-ACHIEVEMENT)

**POSITION-CIVILIAN-FULL-TIME-EQUIVALENT:** The demonstrated number of civilian people, adjusted for seasonality, cycles, etc., needed to accomplish the activity. (A non-key attribute of POSITION-MECHANISM)

**POSITION-MILITARY-FULL-TIME-EQUIVALENT:** The demonstrated number of military people, adjusted for seasonality, cycles, etc., needed to accomplish the activity. (A non-key attribute of POSITION-MECHANISM)

**POSITION-NAME:** A declarative word or phrase that differentiates one instance of a POSITION from another (to someone familiar with the subject area). (A key attribute owned by the entity POSITION)

**PRECEDING-ACTIVITY-MODEL-VERSION-ID:** Identifies the iteration of the activity model that is being transformed by a new version. (A key attribute of the entity MODEL-ACTIVITY-TRANSITION-LINK, using a role name for ACTIVITY-MODEL-VERSION-ID)

**PRECEDING-ACTIVITY-NAME:** The declarative word or phrase that identifies the activity that is undergoing transformation. (A key attribute of the entity MODEL-ACTIVITY-TRANSITION-LINK, using a role name for ACTIVITY-NAME)

**PRECEDING-INITIATIVE-ACTIVITY-NAME:** The declarative word or phrase that identifies an INITIATIVE-ACTIVITY as the previous activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-NAME)

**PRECEDING-INITIATIVE-DESIGNATION:** A declarative word or phrase that one differentiates instance of an INITIATIVE from another (to someone familiar with the subject area), as it relates to an INITIATIVE-ACTIVITY that is the previous activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for INITIATIVE-DESIGNATION)

**PRECEDING-PROCESS-ACTIVITY-MODEL-NAME:** The word or phrase that identifies the ACTIVITY-MODEL that an initiative is trying to accomplish, as it relates to an INITIATIVE-ACTIVITY that is the previous activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-MODEL-NAME)

**PRECEDING-PROCESS-ACTIVITY-MODEL-VERSION-ID:** Identifies the iteration of an ACTIVITY-MODEL that an initiative is trying to accomplish, as it relates to an INITIATIVE-ACTIVITY that is the previous activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-MODEL-VERSION-ID)

**PRIMARY-OUTPUT-TYPE:** A taxonomic characteristic that differentiates one group of PRIMARY-OUTPUT from another group. (A non-key attribute of the entity PRIMARY-OUTPUT. Used as a discriminator for the category entities SERVICE-OUTPUT and PRODUCT-OUTPUT.)

**PRIOR-COMPONENT-ACTIVITY-NAME:** The identification of one component in its place in a series or sequence of peer activities. (A key attribute of the entity COMPONENT-ACTIVITY, using a role name for ACTIVITY-NAME)

**PROGRAM-ELEMENT-CODE:** A unique value assigned to an instance of PROGRAM-ELEMENT. It contains information that identifies a program-element and the Major Force Program and Component responsible for that program-element. (An alternate key owned by the entity PROGRAM-ELEMENT)

**PROGRAM-ELEMENT-NAME:** A declarative word or phrase that differentiates one instance of an PROGRAM-ELEMENT from another (to someone familiar with the subject area). (A key attribute owned by the entity PROGRAM-ELEMENT)

**REVOLVING-FUND-PURPOSE:** The defined or approved intention for which the revolving funds are to be allocated. (A key attribute owned by the entity REVOLVING-FUND-SOURCE, using a role name for the attribute FUNDING-SOURCE-PURPOSE)

**ROOT-ACTIVITY-NAME:** The declarative word or phrase that differentiates one instance of ROOT-ACTIVITY from another (to someone familiar with the subject area). (A key attribute of the entity ROOT-ACTIVITY, using a role name of the attribute ACTIVITY-NAME)

**ROOT-ACTIVITY-NUMBER:** The specific ACTIVITY that serves as the parent or top-most ACTIVITY within a model. (A non-key attribute of ACTIVITY-MODEL-VERSION)

**STRATEGIC-GOAL-NAME:** A declarative word or phrase that differentiates one instance of STRATEGIC-GOAL from another (to someone familiar with the subject area). (A key attribute of the entity STRATEGIC-GOAL)

**STRATEGIC-PERFORMANCE-MEASURE-NAME:** A declarative word or phrase that indicates the criteria for gauging the improvement in execution of an activity for an instance of a STRATEGIC-PERFORMANCE-OBJECTIVE. (A key attribute of the entity STRATEGIC-PERFORMANCE-OBJECTIVE, using a role name for the attribute PERFORMANCE-MEASURE-NAME)

**SUCCEEDING-ACTIVITY-MODEL-VERSION-ID:** The activity model version that is the result of a change to the activities. (A key attribute of the entity ACTIVITY-TRANSITION-LINK, using a role name for ACTIVITY-MODEL-VERSION-ID)

**SUCCEEDING-ACTIVITY-NAME:** The activity that is the result of implementing changes to a similar activity in a prior model version. (A key attribute of the entity ACTIVITY-TRANSITION-LINK, using a role name for ACTIVITY-NAME)

**SUCCEEDING-INITIATIVE-ACTIVITY-NAME:** The declarative word or phrase that identifies an INITIATIVE-ACTIVITY as the subsequent activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-NAME)

**SUCCEEDING-INITIATIVE-DESIGNATION:** A declarative word or phrase that one differentiates instance of an INITIATIVE from another (to someone familiar with the subject area), as it relates to an INITIATIVE-ACTIVITY that is the subsequent activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for INITIATIVE-DESIGNATION)



**SUCCEEDING-PROCESS-ACTIVITY-MODEL-NAME:** The word or phrase that identifies the ACTIVITY-MODEL that an initiative is trying to accomplish, as it relates to an INITIATIVE-ACTIVITY that is the subsequent activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-MODEL-NAME)

**SUCCEEDING-PROCESS-ACTIVITY-MODEL-VERSION-ID:** Identifies the iteration of an ACTIVITY-MODEL that an initiative is trying to accomplish, as it relates to an INITIATIVE-ACTIVITY that is the subsequent activity in a sequence of activities. (Non-key attribute of the entity INITIATIVE-ACTIVITY-LINK, using a role name for ACTIVITY-MODEL-VERSION-ID)

**SUPPLIER-CAGE-CODE:** A unique value assigned to an instance of a commercial, DoD, or other government agency source of supply. (A key attribute native to the entity SUPPLIER)

**SUPPLIER-TYPE:** Identifies a SUPPLIER as DoD, Non-DoD-Government or contractor. (A non-key attribute of SUPPLIER used as a discriminator for the category entities DOD-SUPPLY-SOURCE, NON-DOD-GOVERNMENT-SUPPLY-SOURCE and CONTRACTOR-SUPPLY-SOURCE)

**SUPPLY-REQUIREMENT-DESCRIPTION:** A definition of a material or service provided by a SUPPLY-SOURCE to satisfy the need of a specific TECHNICAL-SUPPLY-REQUIREMENT. (A key attribute owned by the entity TECHNICAL-SUPPLY-REQUIREMENT)

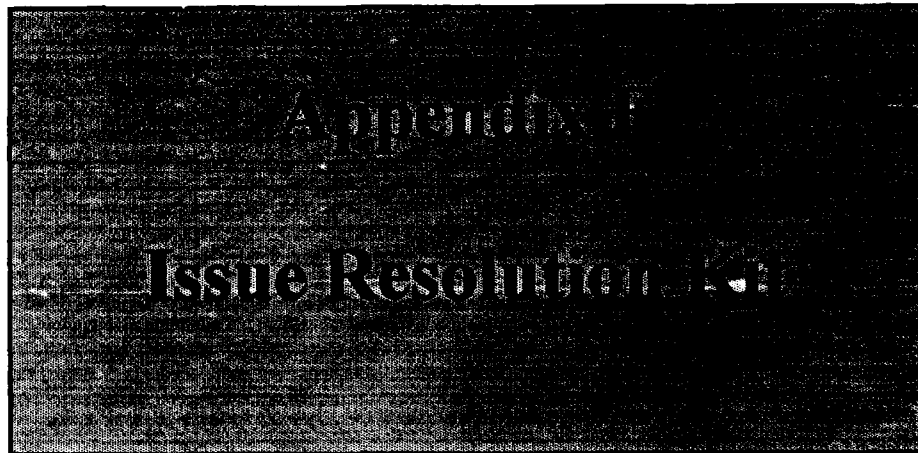
**TECHNICAL-SPECIFICATION-ACCEPTANCE-CRITERIA:** The minimum measure allowable to comply with an instance of TECHNICAL-SPECIFICATION. (A non-key attribute owned by the entity TECHNICAL-SPECIFICATION)

**TECHNICAL-SPECIFICATION-PERFORMANCE-CRITERIA:** The standards used to evaluate the performance of a product or service described within the TECHNICAL-SPECIFICATION. (A non-key attribute owned by the entity TECHNICAL-SPECIFICATION)

**TREASURY-SYMBOL:** A code used by the Department of Treasury to uniquely identify an instance of APPROPRIATION. (An alternate key owned by the entity APPROPRIATION)

**UNIT-IDENTIFICATION-CODE (UIC):** The unique value assigned to an instance of ORGANIZATIONAL-UNIT. (An alternate key owned by the entity ORGANIZATIONAL-UNIT)

**VALUE-ADDED-INDICATOR:** Shows whether a MODEL-ACTIVITY has been determined to be value added, or non-value added. (A non-key attribute owned by the entity MODEL-ACTIVITY, used as a discriminator for the category entities VALUE-ADDED-ACTIVITY and NON-VALUE-ADDED-ACTIVITY)



## Appendix F Issue Resolution Kit

Modeling Issue Title	Status	Issue
Tooth-to-Tail	closed	1

Description of Issue
<p>Tooth-To-Tail is the ratio between operations costs over management and support costs. Theoretically, the higher the ratio, the better. Operations (Ops) costs, or the "tooth," are the real work done by the organization, and management and support (M &amp; S) costs, or the "tail," are in effect, the organizational costs. <i>Touch labor</i> costs or <i>direct</i> costs are types of Ops costs. <i>Overhead</i> costs or <i>indirect</i> costs are types of M &amp; S costs.</p> <p>This management measure has demonstrated little value to FEA practitioners, as it is not clear how to divide certain costs or activities between Ops or M &amp; S. Sometimes the ratio is misleading, e.g., replacing ten million dollars of non-value added Ops activity with one million dollars of value added M &amp; S activities <i>worsens</i> the ratio.</p> <p>The prevailing opinion suggests replacing the Ops to M &amp; S cost ratio with a Value Added to Non-Value Added cost ratio. Non-value added costs are those caused by delay, excess, or variation. This follows directly from the classification of activities done in preparation of the FEA. This ratio would not require identifying direct versus indirect costs.</p> <p>Another related suggestion applies to the discussion of cost elements. Could all FEA costs roll up under: <i>civilian labor</i>, <i>military labor</i>, <i>all other variable</i>, or <i>all fixed</i> cost elements? This flexible budgeting approach seems better suited to a functional manager's costing needs.</p>

Participants	Issue Cross References
	FEAM <i>Proposed Cost Structure</i> Issue 7 - FEAM

Recommendations	Updates
Drop Tooth-to-Tail Replace Ops to M&S cost ratio with value-added to non-value added cost ratio.	1 July 1993

Modeling Issue Title	Status	Issue
Labor Cost Element	tabled	2

**Description of Issue**

A group should meet to discuss Labor as a cost element in the FEAM. In examining the Labor cost element, there are a couple of issues that need to be addressed.

A full-time employee may provide support to a number of activities. The labor hours are typically allocated to the activities in an estimated percentage. The accuracy of the percentages decreases as the level of detail or decomposition increases. The figures for leaf-node activities are an estimated percentage of an estimate. The group should reach an agreement on the level of accuracy required to support the decision maker using the FEA.

The functionals performing FEA have questioned the placement of IT-related labor within the cost elements. Some FEA practitioners have placed these labor costs in the Labor element, and others have placed the labor costs in the IT cost element. The correct placement for the IT-related labor should be determined and the guidance disseminated to future FEA practitioners. Basic rule: if you're there because the computer is there, you're part of the IT cost; if the computer is there because you're there, you're part of the functional cost.

Participants	Issue Cross References
	FEAM Proposed Cost Structure Abstract #8 Issue 5 - IT Cost Element Issue 7 - FEAM Issue 13 - Allocations

Recommendations	Updates
	1 July 1993

Modeling Issue Title	Status	Issue
Material Cost Element	tabled	3

**Description of Issue**

Are there any cases when throughput material is considered as an activity cost? Throughput material is that which is processed or transformed by the activity, but is not actually consumed by the activity (other than offal or waste byproducts). For example, does the effort (and cost) expended in procuring one box of paper vary from the effort needed for one hundred pallets of paper? An activity's unit cost should include material used in its performance, not the object it is acting on. Jack Cloos will take this as an off-line task and report back.

Consumed material accounting treatment is difficult. Some functional activities have picked an industry standard to account for inventory maintenance costs (holding costs) and separated cost of material from cost of handling material (material overhead). What is the role of these costs in an FEA?

Some material uses DBOF as its source and others do not. How should this be handled? [8]

Participants	Issue Cross References
	FEAM <i>Proposed Cost Structure</i> Abstract #8 Issue 7 - FEAM Issue 8 - Revolving Fund

Recommendations	Updates
Clarify through-put/consumed guidance.	1 July 1993

Modeling Issue Title	Status	Issue
Facilities Cost Element	tabled	4

**Description of Issue**

A group should focus on the cost element Facility. The Facility costs have been difficult to for functional managers to obtain. The Facility cost element within the FEAM seems to be a real property idea. The placement of facility maintenance costs is ambiguous and needs to be decided. For some activities, the Facility cost element may be of little interest, whereas for other activities it may be a major are of expense.

The idea of "Capital Budgeting" and depreciation needs to be explored and its applicability to the FEAM determined. The Comptroller is moving toward depreciation, and this will change the significance of facilities in an FEA.

Participants	Issue Cross References
	FEAM <i>Proposed Cost Structure</i> Abstract #8 Issue 7 - FEAM

Recommendations	Updates
	1 July 1993

Modeling Issue Title	Status	Issue
IT (Information Technology) Cost Element	closed	5

### Description of Issue

IT is a separate cost element in FEAM, allowing the use of a 12% deflator. The deflation assumption may not always hold true. The GSA schedule shows deflators that are more conservative, i.e., less deflating.

In FEAM version 2.3, IT means cost of acquisitions only, that is, in-house development should be included in Labor. There's a question about what cost element should include the cost of contracts? In the unreleased version 3.0, IT is split between COTS and non-COTS with the assumption that non-COTS would handle contracts. Is this valid?

It appears that IT as a cost element is too limiting. Could we discontinue its use and instead replace with a breakout of IT costs that are subtotal of the greater functional cost? This could be accomplished by identifying an Initiative-Activity as an IT cost through the use of a yes or no attribute. This would allow us to determine IT costs within a functional area.

It was suggested that as a first step, we use the IT definition on page B-1 of Budget Guidance Manual. How does this definition of IT map to PA&E's Economic Analysis requirements [12]?

Can IT be identified to one activity? Information systems are usually identified as a mechanism in IDEF0 models. Many times one information system can service multiple activities, requiring allocations. The allocation of mechanisms is less accurate as you go down in level of detail (decomposition), as one begins estimating a percent of another estimate.][2]. However, information systems should be thought of as functional enablers, "benefiting" the activity rather than the outcome [43].

A guide to preparing IT cost estimates may be helpful. A suggestion was made to provide a periodically updated compendium of unit costs for IT estimating (workstation, etc.).

Participants	Issue Cross References
	FEAM Proposed Cost Structure IT-43 Abstract #8 Issue 2 - Labor Cost Element Issue 7 - FEAM Issue 12 - Information Systems Issue 13 - Allocations

Recommendations	Updates
Drop IT cost element.	1 July 1993



Modeling Issue Title	Status	Issue
G&A and Other Cost Element	closed	6

Description of Issue
<p>Incorporated into guidance for users of the FEAM in conducting and FEA should be a rule that the total figure for "other" should not be larger than the other cost elements. A group should meet and determine 3 or 4 common subcategories of "other" as an example of the types of cost this should include. It has been suggested that a limitation or constraint be incorporated into the software that limits the amount of "other" permitted (for example, 10%). Another option would require a detailed explanation of the "other" category costs if the amount is greater than a certain percentage of the total costs. The group should also address the G&amp;A cost element, determining the kinds of costs that are appropriate for this category.</p> <p>✓The G&amp;A and HQ Support of Installations categories in version 2.3 were designed to take in all the tail. Version 3 of the FEAM model replaces these with "G&amp;A" and "Other". The group must determine how these categories are to be used.</p>

Participants	Issue Cross References
	<i>FEAM Proposed Cost Structure</i> Abstract #8 Issue 7 - FEAM

Recommendations	Updates
<ul style="list-style-type: none"> <li>• Drop G&amp;A and HQ Support of Installations.</li> <li>• Follow Comptroller's G&amp;A definitions.</li> <li>• Place constraint on "Other" cost element.</li> </ul>	1 July 1993

Modeling Issue Title	Status	Issue
FEAM	modeled	7

Description of Issue
<p>In addition to incorporating the results of the cost element groups, the group given the task of examining the FEAM issues should specifically address the following issues:</p> <ul style="list-style-type: none"> <li>• Who are the customers?</li> <li>• Should Object Classes be mapped to the FEA Cost Elements? A preliminary exhibit should be created, with participation from Joe Romito.</li> <li>• How do we handle risk?</li> <li>• What does the "decision maker" want to see in the FEAM? Does s/he want to see IT broken out?</li> <li>• RDT&amp;E and Investment phases of work are sometimes difficult to distinguish. Should RDT&amp;E be just Development? There is some conflict of terms between FEAM and OMB, including the definition of RDT&amp;E. These conflicts should be resolved.</li> </ul>

Participants	Issue Cross References
	<p><i>FEAM Proposed Cost Structure</i></p> <p>Issue 1 - Tooth-to-Tail</p> <p>Issue 2 - Labor Cost Element</p> <p>Issue 3 - Material Cost Element</p> <p>Issue 4 - Facilities Cost Element</p> <p>Issue 5 - IT Cost Element</p> <p>Issue 6 - G&amp;A &amp; Other Cost Element</p>

Recommendations	Updates
Breakout recurring activities and one-time (initiative) activities.	1 July 1993

Modeling Issue Title	Status	Issue
Revolving Fund	modeled	8

Description of Issue
<p>Revolving funds include DBOF and industrial funding, and perhaps fee-for-service (e.g., DITSO).</p> <p>DBOF's receive initial appropriations, and receive replenishments thereafter. We need to deal with this condition, i.e., having the model reflect funds outside of direct appropriations, e.g., DLA: Although DLA is a component, they operate like a retail organization. While DBOF and its unit costing concept are traceable to activity costing. The funds, and the organizational activities which operate within, that go into the DBOF are no longer traced to an appropriation.</p> <p>Some material uses DBOF as it source and others do not. How should this be handled? [3]</p> <p>How do you capture large hardware/software purchases that are not project specific. How do we do large quantity buys, e.g. USAF computers, and charge out as needed (fee-for-service idea). What's an acquisition and what's an investment (replacement of computers)? What impact is caused by the use of IDIQ contracts?</p> <p>The DBOF is an issue for the 43s also, as Information Management funds have been shifted to DITSO. Could the FEA provide the prepares of 43 series exhibits will this data [43]?</p>

Participants	Issue Cross References
	IT-43 Abstract #9 Issue 3 - Material Cost Element Issue 15 - Products & Services

Recommendations	Updates
Changed entity "Appropriation" to "Funding Source"	1 July 1993

Modeling Issue Title	Status	Issue
FEA Process	open	9

### Description of Issue

The impact of discoveries and issues from this session must be related back to changes in the FEA process. Some of these issues include:

Determining the appropriateness of figuring reduced headcount projections. It may be more appropriate to implement the changes, and then bring in a Methods Engineering Team to pull the cost savings out of the budget.

FEA practitioners should capture an audit trail when collecting data in order to redefend the FEA model, since it will serve multiple purposes. It must be clear where the initial data came from, and the audit trail should provide an understanding of the data flow, cost schedules, etc. This audit trail will aid functional managers to enter data once and use it many times.

Examine the impact of the initiative funding process, future procurements, etc. There exists a number of approval stovepipes, any of which could be a disapproval that can cause an FEA to be re-done. This is another supporting argument for providing an audit trail.

Discuss the concepts of re-engineering vs. incremental improvement.

FEA Scoping/Order of Magnitude issues: how deep does a functional manager go?

Lifetimes of an FEA vs. an activity model. Currently getting FEAs that don't ever go back and revisit the changes that were made. An FEA Baseline is the same as MAISRC status quo. However, AS-IS activity models are a snapshot at the time they're taken. Incremental changes can use transitional TO-BE models to help synchronization.

Terminology issue: what does "information infrastructure" mean?

We need to find and benchmark other equivalent FPI processes in other agencies or in industry.

Who are the stakeholders in the FEA process? MAISRC, IT43s, functional managers, IM environment.

Where's the next pilot for the data model (maybe acquisition?).

How are nested FEAs reconciled?

<b>Participants</b>	<b>Issue Cross References</b>

<b>Recommendations</b>	<b>Updates</b>
	1 July 1993

<b>Modeling Issue Title</b>	<b>Status</b>	<b>Issue</b>
<b>Improvement Opportunity and Benchmarking</b>	tabled	10

<b>Description of Issue</b>
<p>The current FPI Business Rule model does not depict the idea of Best Business Practices, or Benchmarking. Entities representing these ideas need to be depicted, and their relationship to other areas explored. Are benchmarks just related to performance measures?</p> <p>The idea of an entity preceding Improvement-Opportunity, representing the issue, problem, or deficiency discovered that led to the Improvement-Opportunity, should also be explored and depicted.</p>

<b>Participants</b>	<b>Issue Cross References</b>
	Abstract #1

<b>Recommendations</b>	<b>Updates</b>
	16 June 1993

Modeling Issue Title	Status	Issue
Non-cost Resource Attributes (demand/supply, workload)	modeled	11

Description of Issue
<p>A group should explore site specific costs per activity, and how the workload is divided between activities in transition, or sites. The use of tables or screens may help to make this clearer. This issue would probably be best dealt with in the context of a standard activity costs discussion with the Comptroller, primarily regarding the FEA update.</p> <p>Attributes that form the resource pools are not in all cases identifiable with the functional activities that the manager wants to manage. We currently need to make allocations, which vary in degree of accuracy. The current pools may be too big, and may the activity may need to be aggregated higher, or the pool broken down lower. The overarching issue is that the current accounting structure does not, in most cases, match the functional areas/activities outlined by CIM. The resolution of this CIM vs. PPBS issue will most likely resolve the site specific cost issue.</p> <p>The group should identify where to put workload projections in the FPI model.</p> <p>There is a need for attributes other than cost to depict resource needs, such as Full-Time-Equivalent (FTE). The attributes would most likely be placed in the entity Mechanism-Resource-Pool.</p>

Participants	Issue Cross References
	<p>Abstract # 2</p> <p>Abstract #10</p> <p>Abstract #12</p> <p>Issue 14 - Strategic Goal Model</p> <p>Issue 15 - Products &amp; Services</p> <p>Issue 16 - Miscellany</p>

Recommendations	Updates
Part of Core Team Modeling Session	23 June 1993

Modeling Issue Title	Status	Issue
Information Systems	closed	12

Description of Issue
<p>Information systems are found within FEA alternatives, identified as initiatives. Information systems may serve more than one functional activity, and have life cycle costs beyond their fielding.</p> <p>We need a way to express the "rice bowl" for each major system, e.g., EDMICS. There is currently no modeled attribute that identifies it, e.g. EDMICS vs. CHCS.</p> <p>Place an optional in the entity Initiative called Major System Designation.</p> <p>It was suggested that as a first step, we use the IT definition on page B-1 of Budget Guidance Manual. How does this definition of IT map to PA&amp;E's Economic Analysis requirements [12]?</p> <p>Analyzing supplier relationships may help us understand how we can represent Central Design Activities, and 43 series reporting needs. [43]</p> <p>We need to expand the Activity-Mechanism categories, and allow for IT, and entities analogous to Supplier-Source attached to initiatives.</p> <p>Supply-Source entity: Need to take a case history and apply to this. CAGE code may be a more meaningful attribute than the Supply-Sequence-Number. Probably a multi-valued attribute, because of multiple contract possibility.</p>

Participants	Issue Cross References
	<p>Abstract #6</p> <p>Abstract #10</p> <p>Abstract #11</p> <p>Abstract #12</p> <p>Issue 17 - Initiative to Recurring Activity Linkage</p>

Recommendations	Updates
<p>Only "Initiative" will carry characterization as a "major system designation."</p> <p>Recurring activities and initiatives now have similar supplier, etc. relationships.</p>	24 June 1993



Modeling Issue Title	Status	Issue
Allocations	canceled	13

Description of Issue
The team discussed work done in this area by Computer Aided Manufacturing - International (CAM-I), which said a driver can be used as an allocation base (e.g. number of head, number of square feet). This area needs some substantiation and more thinking

Participants	Issue Cross References
	Abstract #2 Issue 2 - Labor Cost Element Issue 5 - IT Cost Element

Recommendations	Updates
	16 June 1993

Modeling Issue Title	Status	Issue
Strategic Goal Model	closed	14

Description of Issue
<p>Within the current FPI Enterprise model, strategic goal and mission are linked at the entity Activity-Model-Version. They are not tied to Performance-Measure. There can actually be more than one goal for an Activity-Model-Version. The Performance-Measure should depict how well a goal is achieved. A new entity, perhaps called Strategic-Goal, should be linked to Performance-Measure.</p> <p>Functional Area/Activity is not depicted in the model, it is only implied.</p>

Participants	Issue Cross References
	<p>Abstract #13</p> <p>Issue 11 - Non-Cost Resource Attributes</p> <p>Issue 15 - Products &amp; Services</p> <p>Issue 16 - Miscellany</p>

Recommendations	Updates
Part of Core Team Modeling Session	23 June 1993

Modeling Issue Title	Status	Issue
Products and Services Model	modeled	15

Description of Issue
<p>The model does not provide for products or services resulting from modeled activities (activity output). Would this aid the discussion regarding DITSO type fee-for-service concepts. In that case, it would indicate one activity's output becoming another activity's mechanism. This may become a category of an activity model output ICOM.</p> <p>Products and services related to workload and DITSO/Fee for Service issues, depend on determining the handling of ops activities in the life cycle; costs of system, system charges, et al. [8]</p>

Participants	Issue Cross References
	<p>Abstract #12  Issue 8 - Revolving Fund  Issue 11 - Non-Cost Resource Attributes  Issue 14 - Strategic Goal Model  Issue 16 - Miscellany</p>

Recommendations	Updates
Part of Core Team Modeling Session	23 June 1993

Modeling Issue Title	Status	Issue
Miscellany	modeled	16

**Description of Issue**

Some of the issues discovered, while significant, did not fall into a major issue category. A group should examine these singular issues, keeping in mind any potential impact to other model areas. This issues are:

- Examine and resolve whether a Program-Element can be related to many Appropriations.
- Test the relationship between drivers and controls: do you allow a control that doesn't have a driver? Test the differences between driver types. Do we have the right types? Are they redundant?
- Walk an example of an FEA/EA requirement through the MAISRC and acquisition processes.

Participants	Issue Cross References
	Abstract #5 Abstract #6 Abstract #9 IT-43

Recommendations	Updates
Incorporate Driver/Control issue into Core Team Modeling Session	23 June 1993

Modeling Issue Title	Status	Issue
Initiative to Recurring Activity Linkage (benefits)	modeled	17

### Description of Issue

How does FEA measure a return on investment or achieved benefits? Where is this obtained? It's not in the current 43 series, other than the narratives. What functional changes must be made, and what is the benefit from these changes. FEA depicts savings as a change to the functional activity baseline, offset by investment costs. The savings is derived through FEA preparers timing the implementation of initiatives to reductions in activity costs. However, this is not a hard linkage. The modeling effort needs to provide this linkage, possibly paving the way for FEA becoming a part of the management reporting structure [43].

What comes out of the budget? Benefits are not always about dollars, but if you are going to show dollar savings, show real dollar reductions [43]. How do we reduce the noise of analysis change on budgets? Need to have a tracking signal or trigger to know when the savings should affect the budget.

How can we link the FEA Model to the 43 series, as everything in the 43A-1 should be in the FEA somewhere [43].

The concept of a Functional Area/Functional Activity was supposed to act like industry's Business Activities (about 20). We may not need to have 112 as a reporting requirement [43].

Should information systems be thought of as functional enablers, "benefiting" activities rather than outcomes? Functional savings can only be obtained through implementation of complete initiatives, of which an information system may be only a small part. This is compounded by inclusion of an information system's operational activities past the time fence impacted by completion or fielding of initiatives. These operational activities are not part of the initiative, but are considered within the information system's life cycle [43].

Examine a simple or complex initiative structure, and initiatives as they come on line and affect existing activities. Load these examples into an instance table, using the PA&E template.

Related to products and services, invites the question of the benefits/impacts to the other functional areas (perhaps elevating the activity model abstraction, or the "A-1" idea) in putting guidance together. Address costs, benefits and responsibilities of an initiative to other functional activities, aka cross-functional impacts.

We need to model the concept of a "process." A process is a chain of activities that cuts across organizational boundaries. Processes may not be apparent at the higher FEA level, but lower at TQM-targeted levels, as a process level activity should be a member of one business process.

We need to understand who are the activity and process stakeholders. Who is the proponent of a process, since a process may cut across organizational boundaries. As a rule, all value added activities have more than one stakeholder.

Analyzing what type of data is used within the life cycle cost WBS leads us to finding a way to tie together the concepts of a bill of materials and a bill of activities in support of the WBS. The life cycle cost element structure mixes the two (activities and items). Map to the initiative-activities and the supply-source. This should fit the MAISRC requirements. We need to test this area of the model and how it fits to the MAISRC requirements very carefully.

Participants	Issue Cross References
	Issue 12 - Information Systems Abstract #6

Recommendations	Updates
Facilitation team to develop a pro-forma data model, to be reviewed by Core Team.	30 June 1993

# **Appendix G**

## **Instance Table Examples**

**Appendix G Instance Tables****Initiative**

<b>Initiative-Designation</b>	Increase EDMICS User Community		
<b>Activity-Model-Name</b>	ITAP		
<b>Activity-Model-Version-ID</b>	TO-BE		
<b>Initiative-Major-System Designation</b>	EDMICS		
<b>Initiative-Activity-Model-Name. Activity-Model-Name</b>	ITAP		
<b>Initiative-Activity-Model-Version-ID.Activity -Model-Version-ID</b>	AS-IS		
<b>Initiative-Start-Date</b>	10/1/93		
<b>Initiative-Required-Completion-Date</b>	9/30/97		
<b>Initiative-Acceptance-Criteria</b>	text		
<b>Initiative-Type</b>	Info System		

**Initiative-Activity**

<b>Initiative-Designation</b>	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
<b>Initiative-Activity-Name.Activity -Name</b>	Develop Software	Buy Hardware	Train Users
<b>Activity-Model-Version-ID</b>	TO-BE	TO-BE	TO-BE
<b>Activity-Model-Name</b>	ITAP	ITAP	ITAP
<b>Accountable-Component-Name.Component- Name</b>	DLA	DLA	DLA
<b>Accountable-Organization-ID.Organization- ID</b>	DLA CDA Columbus (DLSO)	DLA CDA Columbus	HQ
<b>Activity-Version-ID</b>	DISA/9/93	DISA/9/93	DISA/9/93
<b>Initiative-Activity-Cycle-Time</b>	36 months	24 months	12 months
<b>Initiative-Activity-Performance-Criteria</b>			
<b>Initiative-Activity-Milestone-Indicator</b>			



**Initiative-Activity-Work-Performer**

Initiative-Designation	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
Initiative-Activity-Name	Develop Software	Buy Hardware	Train Users
Initiative-Activity-Component-Name-Component-Name	DISA	DISA	DISA
Initiative-Activity-Organization-ID-Organization-ID	DITSO	DITSO	DITSO
Activity-Model-Version-ID	TO-BE	TO-BE	
Activity-Model-Name	ITAP	ITAP	ITAP
Initiative-Activity-Life-Cycle-Cost-Element-ID	2.022	2.01	2.05
Initiative-IT-Focus			

**Initiative-Activity-Work-Resource-Pool**

Component-Name	DLA	DLA	DLA
Major-Force-Program-Name	Central Supply & Maintenance	Central Supply & Maintenance	Central Supply & Maintenance
Program-Element-Name	Supply Ops	Supply Ops	Supply Ops
Funding-Source-Budget-Fiscal-Year	FY-94	FY-94	FY-94
Funding-Source-Purpose	Procurement	Procurement	Procurement
Organization-ID	Defense General Supply Center	Defense General Supply Center	Defense General Supply Center
Object-Class-Code	Acquisition of Capital Equipment	Acquisition of Capital Equipment	Acquisition of Capital Equipment
Initiative-Designation	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
Initiative-Activity-Name	Develop Software	Buy Hardware	Train Users
Initiative-Activity-Component-Name	DISA	DISA	DISA
Initiative-Activity-Organization-ID	DITSO	DITSO	DITSO
Process-Activity-Model-Version-ID	TO-BE	TO-BE	TO-BE
Process-Activity-Model-Name	ITAP	ITAP	ITAP
Initiative-Activity-Civilian-Labor-Amount			
Initiative-Activity-Facility-Amount			
Initiative-Activity-Material-Amount			
Initiative-Activity-Military-Labor-Amount			
Initiative-Activity-Other-Amount			
Initiative-Activity-Equipment-Amount			
Initiative-Activity-General-Admin-Amount			

**Initiative-Supply-Agreement**

Initiative-Designation	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
Initiative-Activity-Name	Develop Software	Buy Hardware	Train Users
Initiative-Activity-Component-Name	DISA	DISA	DISA
Initiative-Activity-Organization-ID	DITSO	DITSO	DITSO
Activity-Model-Version-ID	TO-BE	TO-BE	TO-BE
Activity-Model-Name	ITAP	ITAP	ITAP
Supplier-CAGE-Code			
Agreement-ID			

**Initiative-Supply-Assignment**

Initiative-Designation	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
Initiative-Activity-Name	Develop Software	Develop Software	Develop Software
Initiative-Activity-Component-Name	DISA	DISA	DISA
Initiative-Activity-Organization-ID	DITSO	DITSO	DITSO
Activity-Model-Version-ID	AS-IS	TO-BE	TO-BE
Activity-Model-Name	ITAP	ITAP	ITAP
Supplier-CAGE-Code			
Agreement-ID			
Supply-Requirement-Description	Near-Line Mass Storage Queue	Document Retrieval Transaction Set	Near-Line Mass Storage Jukebox Robotic Controls
Performance-Measure-Name	Document Retrieval Time	Document Retrieval Time	Document Retrieval Time
Improvement-Opportunity-Designation	Eliminate Handling	Eliminate Handling	Eliminate Handling
Component-Name	DLA	DLA	DLA
Organization-ID	Defense General Supply Center	Defense General Supply Center	Defense General Supply Center
Functional-Requirement-Designation	On-Line Access	On-Line Access	On-Line Access

**Technical-Specification**

Activity-Model-Version-ID	TO-BE		
Functional-Requirement-Designation	On-Line Access		
Activity-Model-Name	ITAP		
Performance-Measure-Name	Document Retrieval Time		
Improvement-Opportunity-Designation	Eliminate Handling		
Initiative-Designation	Increase EDMICS User Community		
Component-Name	DLA		
Organization-ID	Defense General Supply Center		
Technical-Specification-Performance-Criteria			
Technical-Specification-Acceptance-Criteria			

**Technical-Supply-Requirement**

Activity-Model-Version-ID	TO-BE	TO-BE	TO-BE
Supply-Requirement-Description	Supercomputer	Robotic Cassette Storage/Retrieval System	Tape Cassettes
Activity-Model-Name	ITAP	ITAP	ITAP
Performance-Measure-Name	Document Retrieval Time	Document Retrieval Time	Document Retrieval Time
Improvement-Opportunity-Designation	Eliminate Handling	Eliminate Handling	Eliminate Handling
Initiative-Designation	Increase EDMICS User Community	Increase EDMICS User Community	Increase EDMICS User Community
Component-Name	DLA	DLA	DLA
Organization-ID	Defense General Supply Center	Defense General Supply Center	Defense General Supply Center
Functional-Requirement-Designation	On-Line Access	On-Line Access	On-Line Access